

XIII.—On a Collection of Birds from British East Africa and Uganda, presented to the British Museum by Capt. G. P. Cosens.—Part II. ACCIPITRIFORMES—CYPSELL. By CLAUDE H. B. GRANT, F.Z.S., M.B.O.U. With Field Notes by the Collector, WILLOUGHBY P. LOWE, M.B.O.U.\*

(Plate IV. and Text-figures 3 & 4.)

#### INTRODUCTION.

MR. Willoughby Lowe has drawn my attention to the altitude given by him of Lake Hannington, *i. e.* 6700 ft., whereas the maps give the altitude as 6200 ft., the difference of 500 ft. being due, Mr. Lowe tells me, to his aneroid having become slightly deranged.

This second part covers 78 species and subspecies, making a total of 170 to the end of the Swifts, and the new subspecies described herein or in the Bulletin of the British Ornithologists' Club are four in number, as follows :—

*Poicephalus meyeri neavei*, *Halcyon leucocephala ogilviei*, *Irisor erythrorhynchus ruwenzoræ*, and *Melittophagus variegatus bangweoloensis*.

I have again to thank the gentlemen named in Part I. for their continued great assistance and help; while to Mr. Rothschild and Dr. Hartert, and to Dr. Clubb I am indebted for the kind loan of several valuable specimens from Tring and Liverpool.

I regret that through an oversight Capt. Cosens' name was misspelled in the first part of this paper.

#### SYSTEMATIC LIST.

93. *Serpentarius serpentarius*. Secretary Bird.

*Falco serpentarius* J. F. Miller, Var. subjects Nat. Hist. 1779, pl. xxviii. : Cape of Good Hope.

In this original work examined by me at the British Museum Library, the name is found in the accompanying letterpress as follows :—

\* For Part I., with map of route, see p. 1.

## "Tabula XXVIII.

Fig. A. *Falco serpentarius*, Lin. Syst. Nat. Classis ii. Ordo i. Genus xlv. Spec. 1. Habitat, Cap. B. Spei.

Fig. B. Caput magnitudine naturali."

The plate itself is not superscribed with the name as is the one in the 'Cimelia Physica,' published by the same author in 1796, but it bears at the bottom the following: "Painted, Engraved and Published according to the Act 1779 by John Frederick Miller."

a. ♂ ad. Baringo, 4000 ft. Dec. 28.

Total length in flesh:  $53\frac{3}{4}$  inches. Wing: 670 mm.

In good plumage and still moulting.

The dozen specimens before me show but slight variation throughout south and east Africa.

In the National collection the typical form is represented by a bird from Deelfontein, others from Orange River Colony, Transvaal, and Mashonaland being similar. Birds from Masailand, British East Africa, and Abyssinia are very slightly lighter and whiter below, but are hardly distinguishable from specimens from the Transvaal.

These have been named *S. s. orientalis* Verr. (P.Z.S. 1856, p. 348: East Africa), but I cannot see sufficient evidence for their separation from the South African form. In the J. f. O. 1904, a plate is given of the two forms, and great emphasis is laid on the extent of the bare skin around the eyes; this is found to be of no consequence when specimens are compared.

Two specimens in the Museum from the Sudan which died in the Zoological Gardens have the crest-feathers broader and longer, and the back and wing-coverts are intermingled with darker feathers; these characters may, however, be due to captivity, so no reliance can be placed on them. These specimens have been named *S. gambiensis* Ogilby (P.Z.S. 1835, pp. 104 & 105: Senegambia), but they may not have been compared with Gambian birds.

[Irides brown, bare skin orange, above eye red; bill light bluish horn; legs and toes flesh-colour. Contents of stomach

lizards. Common, frequently seen in pairs, and generally very wild.]

94. *Pseudogyps africanus africanus*. Lesser African Vulture.

*Gyps africanus* Salvad. Not. Stor. R. Accad. Torin. 1865\*, p. 133 : Sennaar.

*a.* ♀ ad. 40 miles N.W. of Baringo, 3400 ft. Jan. 1.

Total length in flesh :  $32\frac{1}{8}$  inches. Wing : 580 mm. Weight : 10 lbs.

In quite good and very little worn dress.

The half a dozen specimens before me of this Vulture do not allow me to discuss finally the four described races, which are as follows :—

*Pseudogyps africanus africanus* Salvad. op. cit.

*P. a. schillingsi* Erl. J. f. O. 1904, p. 150 : Mkomasi, German E. Africa.

*P. a. fülleborni*, Erl. op. cit. p. 151 : Rukwa lake, German E. Africa.

*P. a. zechi* Erl. op. cit. p. 152 : Kratchi, Togoland.

The specimens before me show that the Baringo bird agrees well with the specimen from near the type locality of *P. a. africanus*, as also does one from Guas N'gishu, north-east of Victoria Nyanza.

One from Busongora, Uganda, is much paler, another from Zomba, Nyasaland, is darkish, another from Dakar, Senegal, is rather fulvous and worn, and yet another from Humbe, Angola, is distinctly pale.

I should not be surprised if a larger series will show *P. a. schillingsi* and *P. a. fülleborni* to be synonyms of *P. a. africanus*, the range of which appears to be about from its type locality to Nyasaland.

The pale Angola bird may or may not be a constant form, and in the former case would require a name, and the bird from Senegal may or may not be *P. a. zechi* of Togoland.

[Irides brown, bare skin black ; legs and toes black. Abundant, and seen in company with *Otrogyps auricularis*.]

\* The outside cover of the part of the Not. Stor. in which this paper is found bears the date 1869.

95. *Lophogyps occipitalis*. White-headed Vulture.

*Vultur occipitalis* Burch. Trav. ii. 1824, p. 329: Mak-kwarin River, nr. Kuruman in Bechuanaland.

a. ♂ ad. Weiwei River, Rift Valley, 8000 ft. Jan. 8.

b. ♀. 30 miles N.W. of Baringo, 6800 ft. Jan. 31.

Total length in flesh: ♂  $31\frac{1}{4}$  inches; ♀ 33 inches.

Wing: ♂ 640 mm.; ♀ 605 mm.

Both are in good plumage; the female has the greater part of the feathering of the crown and nape brown, which apparently shows immaturity.

[Irides brown; bill red, tip black; cere bluish green; bare skin pinkish blue; legs and toes flesh-colour. Found sparingly and rather local.]

96. *Neophron percnopterus*. Egyptian Vulture.

*Vultur perenopterus* Linn. Syst. Nat. 10th ed. 1758, p. 87: Egypt.

a. ♀ ad. Mt. Suswa. Sept. 26.

Total length in flesh:  $29\frac{1}{2}$  inches. Wing: 531 mm.

In somewhat worn plumage.

[Irides brown; head orange; bill greyish horn; legs and toes white. Scarce as compared with other Vultures.]

97. *Neophron monachus*. Hooded Vulture.

*Cathartes monachus* Temm. Pl. Col. vol. i. 1823, pl. 222: Senegal.

a. ♀ ad. Amala River. Oct. 12.

Total length in flesh: 28 inches. Wing: 490 mm.

In but slightly worn dress.

[Irides brown; bill bluish brown; head bluish white; legs and toes bluish white.]

98. *Circus pygargus*. Montagu's Harrier.

*Falco pygargus* Linn. Syst. Nat. 10th ed. 1758, p. 89: England.

a. ♂ ad. 20 miles N. of Nakwai, 5800 ft. Dec. 22.

Total length in flesh: 18 inches. Wing: 368 mm.

In fresh plumage and still moulting.

[Irides yellow; bill black; legs and toes yellow. Several of these handsome birds were seen hawking round our camp.]

99. *Circus macrourus*. Grey Harrier.

*Accipiter macrourus* Gmel. N. Comm. Petrop. xv. 1771, p. 439, pls. viii. & ix. : Woronez, S. Russia.

a. ♀ ad. Lake Naivasha, 6700 ft. Dec. 3.

b. ♀ ad. Bakoro Country, 20 miles E. of Lobor Mt., 3600 ft. Feb. 3.

Total length in flesh: 19½ & 19 inches. Wing: 357 & 349 mm.

Both are in good dress and a little worn.

The males of this species and of *C. pygargus* are quite different, but the females are very similar, and can be separated not only by the female of *C. macrourus* being somewhat larger and having somewhat shorter legs than the female of *C. pygargus*, but by the character given by Sharpe (Cat. Birds B. M. vol. i. 1874, p. 52) for distinguishing the females of this species from *C. pygargus*, which is as follows:—

The tips of the primary coverts do not extend beyond the notch on the *outer* web of the 2nd primary = *C. pygargus*.

The tips of the primary coverts extend beyond the notch on the *outer* web of the 2nd primary = *C. macrourus*.

[Irides brown, eyelids yellow; bill black; cere yellow or greenish yellow; legs and toes yellow. Stomach contained mice. Common.]

100. *Circus æruginosus*. Marsh Harrier.

*Falco æruginosus*, Linn. Syst. Nat. 12th ed. i. 1766, p. 130: Sweden.

a. ♂ juv. Lake Naivasha, 6700 ft. Dec. 4.

b. ♂ ad. Naam River, Lakwa, 3150 ft. Feb. 16.

Total length in flesh: ad. 21½ inches; imm. 19 inches. Wing: ad. 400 mm.; imm. 370 mm. Weight of imm.: 1 lb.

The immature bird is apparently in first dress and is not worn. The other is apparently in adult dress and is also in fresh plumage. Judging by the size of specimen *b*. I should think it was probably a female though sexed as a male.

[*Ad.* Irides yellow; bill black; cere greyish yellow; legs and toes yellow. *Imm.* Irides brown; bill black; cere greenish yellow; legs and toes yellow. Tolerably common.]

101. *Melierax metabates*. Many-banded Goshawk.

*Melierax metabates* Heugl. Ibis, 1861, p. 72 : Bahr-el-Abiad, i. e. White Nile.

a. ♀ ad. 15 miles S. of Baringo, 3800 ft. Dec. 26.

b. ♂ imm. Ngabotok, Turkwel River, 2200 ft. Jan. 10.

c. ♀ imm. Mt. Maroto, Maroto Stream, 3700 ft. Jan. 26.

Total length in flesh : ad.  $20\frac{1}{2}$  inches ; imm. ♂  $20\frac{1}{4}$  inches, ♀  $19\frac{1}{2}$  inches. Wing : ad. 334 mm. ; imm. ♂ 307 mm., ♀ 319 mm.

The adult is in rather worn dress and is moulting. The immature male shows one adult feather on the breast, and the female one adult feather on the upper tail-coverts.

As pointed out by Reichenow (Vög. Afr. i. 1901, p. 545) and confirmed by myself, *M. polyzonus* Less. (Traité, 1831, p. 58 : Cape of Good Hope) cannot stand for this species, and it must hereafter be known as *M. metabates* Heugl.

*Falco* (*Nisus*) *polyzonus* Rüpp. (Neue Wirb. Vög. 1835, p. 36, pl. 15 ; Dongola in Kordofan) is preoccupied by *Nisus polyzonus* Less.

The large series in the Museum Collection shows a large amount of individual variation, some examples from the same district being light and others quite dark.

[Ad. Irides brown ; cere orange-red ; bill black, whitish at base ; legs and toes orange-red. Imm. Irides brown or dull yellow, cere dirty red ; bill black, base bluish horn ; legs and toes dirty orange. Common and generally distributed.]

102. *Melierax gabar*. Daudin's Goshawk.

*Falco gabar* Daud. Traité, vol. ii. 1800, p. 87 : Swart Kop River, Camdeboo Berg (Compass Berg), N. of Graaf Reinet.

a. ♂ imm. Loita, 6300 ft. Oct. 4.

b. ♀ ad. Lake Naivasha, 6700 ft. Dec. 3.

c. ♀ ad. 40 miles N.W. of Baringo, 3400 ft. Jan. 1.

Total length in flesh : ad.  $14\frac{1}{2}$  &  $14\frac{1}{4}$  inches ; imm. 13 inches. Wing : ad. 196 & 193 mm. ; imm. 183 mm.

The two adults are in black dress, which, as pointed out by A. L. Butler, Ibis, 1905, p. 369, and with which I agree,

is nothing but a black phase of this species; therefore *M. (Sparvius) niger* Bonn. et Vieill. (Enc. Méth. iii. 1823, p. 1269: Senegal) must in future become a synonym.

Mr. Lowe's interesting field-notes also bear out this conclusion.

The December bird is in full moult, and the January one is in clean dress, though the wing and tail are a little worn.

The immature bird is assuming the adult feathering on the back and head.

[*Ad.* Irides brown or red-brown; bill black; cere black and orange or yellowish black; legs and toes orange, black in front or orange and black. *Imm.* Irides orange-yellow; bill black; cere orange; legs and toes orange-red. Stomach contained mice.

The female from Lake Naivasha, which is in the black phase, was undoubtedly paired to another in normal plumage, and I watched them together for some time before shooting the female. My experience seems to show that females are frequently black, whilst the males, on the other hand, are more frequently in normal dress.]

103. *Astur sphenurus*. Rüppell's Goshawk.

*Falco (Nisus) sphenurus* Rüpp. Neue Wirb. Vög. 1835, p. 42: Dabalak, nr. Massowah.

*a.* ♂ imm. 10 miles N.W. of Kerio River, 3600 ft. Jan. 5.

*b, c.* ♀ ad. & imm. Weiwei River, Rift Valley, 3100 ft. Jan. 7 & 9.

*d, e.* ♂ ad.; ♀ imm. Kittigom, Chua Dist., 2850 ft. Feb. 20 & 21.

Total length in flesh: ♂ 11 & 11½ inches; ♀ 12½ & 13¼ inches. Wing: ♂ ad. 177 mm., imm. 170 mm.; ♀ ad. 193 mm., imm. 196 & 184 mm.

Both the adults are in clean dress and just a little worn; the female is more broadly banded below than the male. All three of the immature birds are starting to assume the adult feathering.

[*Ad.* Irides red ; bill black, bluish at base ; cere yellow ; eyelids yellow ; leg and toes yellow. *Imm.* Similar, except irides yellow. Tolerably common. The adult female from the Weiwei River was shot whilst eating a dove. Stomach contained a lizard.]

104. *Accipiter minullus*. Little Sparrow-Hawk.

*Falco minullus* Daud. *Traité*, vol. ii. 1800, p. 88 : Gamtoos River, Cape Colony.

*a, b.* ♂ ad., ♀ imm. S. Guaso Nyiro, 2900 ft. Nov. 23.

Total length in flesh : ♂  $9\frac{1}{4}$  inches ; ♀ 11 inches. Wing : ♂ 140 mm. ; ♀ 154 mm.

The male is in fresh new dress and the female is assuming the adult dress.

I have carefully examined and compared birds from east and south Africa, and cannot with the series before me see any constant difference in colour or size between them.

Certainly, in freshly moulted birds, some southern examples are darker than east African specimens, whilst others are equally as light ; and when it comes to faded browner specimens I cannot distinguish between them.

Perhaps a much larger series may show that *A. m. tropicalis* Reichenow (J. f. O. 1898, p. 139 : East Africa) is a valid subspecies, though Prof. Reichenow's rather comprehensive type-locality needs greater precision.

[*Ad.* Irides reddish yellow ; bill black, cere yellow ; legs and toes yellow. *Imm.* Irides rich yellow ; cere greenish yellow. This pair were found together in thick bush.]

105. *Accipiter rufiventris*. African Sparrow-Hawk.

*Accipiter rufiventris* A. Smith, S. A. Q. Journ. 1830, pp. 231 & 392 : Baviaans River, nr. Uniondale, Cape Colony.

*a.* ♂ ad. Kikuyu, 6000 ft. Sept. 22.

Total length in flesh :  $14\frac{1}{2}$  inches. Wing : 225 mm.

In quite good dress and agreeing well with specimens from southern Africa.

Though sexed a male, the large size of this specimen seems to point to it being a female.

[Irides bright yellow ; bill, upper mandible dark horn at tip, slate at base, lower dark horn at tip, slate at base ; cere yellow ; legs and toes yellow, claws black.]

106. *Buteo augur*. Augur Buzzard.

*Buteo augur* Rüpp. Neue Wirb. Vög. 1835, p. 38, pl. xvi. : Abyssinia.

*a.* ♂ imm. Kijabe, 6300 ft. Sept. 24.

*b.* ♀ ad. Mau, 6900 ft. Sept. 30.

*c, d.* ♀ ad. & imm. Loita, 6600 ft. Oct. 5.

Total length in flesh : ♂  $21\frac{1}{2}$  inches ; ♀  $21\frac{1}{4}$  & 21 inches. Wing : ♂ 406 mm. ; ♀ 438 & 431 mm. Weight of immature :  $2\frac{1}{2}$  lbs.

The forty specimens of this Buzzard now before me do not enlighten the bewildering plumage changes through which this bird appears to go. We have seven distinct plumages, some of which seem to have nothing to do with each other, so that it would almost appear that there is more than one species.

The seven dresses are as follows :—

- (1) 1st dress (as shown by half-fledged nestling).  
General colour russet-brown, darker on back, lighter below, blobbed or streaked. Tail barred, sooty, or slightly chestnut.
- (2) 2nd dress (as shown by specimens moulting from above). Black above, white below, throat black, tail chestnut.

These two stages seem obvious and clear, but beyond this point no progress seems possible.

The other five plumages are :—

- (3) Apparently a first dress. General colour sooty-brown above and below. Tail sooty, barred or quite plain.
- (4) Apparently an immature dress. Above black with some chestnut, throat and upper chest white with some black markings and somewhat washed with chestnut, rest of underparts pure chestnut ; tail chestnut.

- (5) Apparently an immature dress. Above and below blackish brown, with some chestnut markings; thighs, belly, and under tail-coverts buffy white; tail sooty, tinged with chestnut.
- (6) A dress very close to No. 2, but with throat white.
- (7) All black, tail chestnut.

I suggest that this species has two quite distinct phases, the adults of which are respectively No. 6 and No. 7, and that the sequence of plumage of both start and proceed each along their own lines as follows:—

*Phase A.* Sequence includes dress Nos. 1, 2, 6.

*Phase B.* „ „ „ Nos. 3, 4, 5, 7.

A considerable series may show this to be right or to be utterly wrong, but I put it forward as a theory for future workers to unravel.

The four specimens in the collection are respectively:—

The females are each in the plumage No. 5, No. 6, and No. 7.

The male is almost in plumage No. 6, but there is some black on the throat and some chestnut on the upper parts.

In the Plate in Rüppell's *Neue Wirb. Vög.*, fig. 1 is as described in dress No. 6, and fig. 2 is in the plumage of No. 7.

[Irides brown; bill black or bluish horn, fading to bluish at base; cere yellow; legs and toes yellow. Very common.]

107. *Buteo desertorum*. Rufous Buzzard.

*Falco desertorum* Daud. *Traité*, vol. ii. 1800, p. 162 : Cape of Good Hope.

a. ♂ imm. Amala River, 5400 ft. Oct. 18.

Total length in flesh :  $18\frac{1}{2}$  inches. Wing 338 mm.

In good clean dress.

[Irides brown; bill black; cere yellow; legs and toes yellow. Common on the Amala River. Stomach contained locusts.]

108. *Aquila rapax*. Tawny Eagle.

*Falco rapax* Temm. *Pl. Col.* i. 1828, pl. 455 : “ Dans les forêts de la partie méridionale de l’Afrique ” (Levaillant).

*a.* ♂ ad. W. of Mt. Leganisho, 5850 ft. Oct. 29.

*b.* ♂ imm. Lengototo, 6200 ft. Nov. 11.

Total length in flesh : ad. 28 inches; imm.  $27\frac{3}{4}$  inches.  
Wing : ad. 518 mm.; imm. 530 mm. Weight of immature :  $4\frac{1}{2}$  lbs.

The adult is in good dress and not faded. The immature bird has some dark markings on both the upper and under surface.

The plate in Temminck's work represents a bird in first dress.

[*Ad.* Irides light brown; bill bluish horn, tip black, cere yellow; feet yellow. *Imm.* Irides brown; bill bluish horn, cere yellow; feet pale yellow. Common almost everywhere.]

109. *Lophotriorchis lucani*. Lucan's Eagle.

*Lophotriorchis lucani* Sharpe & Bouv. Bul. soc. zool. Fr. 1877, p. 471; Landana, Congo.

*a.* ♀ imm. Amala River, 5400 ft. Oct. 19.

Total length in flesh :  $21\frac{1}{4}$  inches. Wing : 395 mm.

In clean and apparently first dress, having light tips to the feathers of the head, back, wings, and rump.

[Irides yellowish brown; cere greenish; bill blue, tip black; feet pale yellow. Appears to be scarce.]

110. *Spizaëtus bellicosus*. Martial Hawk Eagle.

*Falco bellicosus* Daud. Traité, vol. ii. 1800, p. 38 : Gt. Namaqualand—"entre le 28° Sud et le Tropique."

*a.* ♀ ad. Nginyan River, 30 miles N.W. of Baringo, 2800 ft. Dec. 31.

Total length in flesh :  $33\frac{1}{2}$  inches. Wing : 638 mm. Weight : 11 lbs.

In fine adult plumage.

[Irides yellow; bill black; cere grey; legs and toes bluish white. Several of these magnificent eagles were seen near the Narossura and Southern Guaso Nyiro Rivers. The one shot was busy devouring a Hyrax in a tree. It seemed quite unconcerned and allowed me to approach within 40 yards.]

111. *Lophoaëtus occipitalis*. African Crested Eagle.

*Falco occipitalis* Daud. Traité, vol. ii. 1800, p. 40 : Pays d'Auteniquoi = Knysna Dist.

*a.* ♀ ad. Amala River, 5500 ft. Oct. 15.

Total length in flesh :  $22\frac{1}{2}$  inches. Wing 390 mm.

In good dress.

[Irides bright yellow ; cere pale yellow ; bill bluish horn, darker at tip ; feet dirty yellow. Frequently seen, and usually perched on a tree or dead branch.]

112. *Circaëtus cinereus*. Brown Harrier Eagle.

*Circaëtus cinereus* Vieill. N. D. d'Hist. Nat. xxiii. 1818, p. 445 : Senegal.

*a.* ♂ ad. Nr. Lake Hannington, 3700 ft. Dec. 25.

Total length in flesh : 26 inches. Wing 534 mm.

In clean dress and but slightly worn.

I have carefully examined the series in the British Museum, and agree with Selater, *cf.* 'Ibis,' 1912, p. 9, Reichenow, Shelley, etc., that *C. cinereus* and *C. pectoralis* A. Smith (S. A. Quart. Journal, 1836, p. 109 : South Africa) should be in future kept separate ; and the character given by Mr. Selater of the difference in size of the bill is quite constant throughout.

Immature birds also are separable as follows :—

*C. cinereus*. The feathers of the underparts white, with a broad brown tip and brown bars or markings carried up both webs to their base.

*C. pectoralis*. The feathers of the underparts white with broad blackish brown tips only.

The general appearance of *C. cinereus* below is wholly brown with some white markings, and of *C. pectoralis* wholly white with some brown markings, except the chest, which is brown.

A young bird in the Museum, from Kuruman, named *C. cinereus*, is really the young of *C. pectoralis*, and has the whole under surface cinnamon-brown, the throat being longitudinally streaked with blackish and the whole upper

surface sandy, with darker centres to the feathers, lighter towards the head and darker towards the tail; the wing-feathers and tail are purplish brown, the latter being indistinctly barred.

No specimen of *C. cinereus* of the same age is available for comparison.

Sir A. Smith, under *C. pectoralis*, describes the young as "uniform light chestnut or a dull earthy-brown plumage." (*Cf.* S. A. Quart. Journal, 1830, p. 109, also footnote.) Is not this possibly the difference between the two species in their first plumage?

[Irides yellow; bill black, cere grey; legs and toes dirty white. Stomach contained remains of snake. Only two seen on the whole trip.]

### 113. *Terathopius ecaudatus*. Bateleur Eagle.

*Falco ecaudatus* Daud. Traité, vol. ii. 1800, p. 54: Pays d'Auteniquoi = Knysna Dist.

a. ♀ ad. Amala River, 5500 ft. Oct. 15.

b. ♀ juv. 30 miles N.W. of Baringo, 2800 ft. Dec. 31.

Total length in flesh: ad.  $22\frac{1}{4}$  inches; juv. 23 inches. Wing: ad. 530 mm.; juv. 476 mm. Weight: 6 lbs.

The adult is a red-backed form in good clean dress. The young is in complete brown dress and very worn.

The three specimens in the Museum of *Helotarsus leucotus* Rüpp. (Syst. Uebers. 1845, p. 10: Sennaar, ex Würt. MS.) respectively from Abyssinia (August), Bahr el Ghazal and Nyasaland (July), are curiously enough all worn birds, and their lighter mantle etc. may be due to fading.

In the 'Ibis,' 1912, p. 9, a note of mine, in regard to these races, is of interest, especially when it is remembered I was at Beira between Nov. 22 and Feb. 24.

A much larger series than is at present available is necessary before any definite decision can be come to.

Levaillant's plate represents clearly the red-backed form. *Cf.* Levaill. Ois. d'Afr. 1799, p. 31, pls. vii. & viii.

[*Ad.* Irides brown; bill yellow tipped with greenish horn; legs and toes pinkish yellow; cere bright red.

*Juv.* Irides brown; bill greenish horn, tip black; cere greenish grey; feet bluish white. Very common. During our whole trip I did not see a single specimen with a white back.]

114. *Milvus ægyptius parasitus*. Southern Egyptian Kite.  
*Falco parasitus* Daud. *Traité*, vol. ii. 1800, p. 150: Cape Colony, *ex* Levaillant.

*a, b.* ♂ imm., ♀ ad. Amala River, 5600 & 5700 ft. Oct. 5 & 12.

Total length in flesh: ad.  $22\frac{1}{4}$  inches; imm. 21 inches.  
Wing: ad. 431 mm; imm. 412 mm.

The adult agrees perfectly with specimens from south Africa. The immature bird is much browner and has a dark bill, though it is not in first dress.

The southern African birds are darker and smaller than northern African specimens, and I have therefore kept this race separate from the true *Milvus ægyptius* Gmelin (*Syst. Nat.* i. 1788, p. 261: Egypt).

Smith, in the *S. A. Q. J.* for 1830, p. 391, noticed the distinctness of this race and supported it; and recently this has been emphasized by Dr. Hartert (*Bull. B. O. C.* vol. xxxiii. 1914, p. 90).

[*Ad.* Irides brown; cere greenish yellow; bill yellow; legs and toes yellow. *Imm.* Irides brown; cere light yellow; bill dark horn, bluish at base; legs and toes yellow. Very common and bold. Occasionally sweeping down and carrying specimens from off the skinning table.]

115. *Elanus cæruleus*. Black-shouldered Kite.

*Falco cæruleus* Desf. *Hist. de l'Acad. R. des Sc. Paris* for 1787, 1789, p. 503, pl. xv.: Environs of Algiers.

*a.* ♀ ad. Kikuyu, 6000 ft. Sept. 23.

*b.* ♂ imm. Lengototo, 6000 ft. Nov. 8.

Total length in flesh: ad. 12 inches; imm.  $12\frac{1}{4}$  inches.  
Wing: ad. 271 mm.; imm. 265 mm.

The adult is in moult and the immature bird is but slightly worn.

[*Ad.* Irides bright red; bill black; cere yellow; legs and toes yellow, claws black. *Imm.* Irides reddish yellow;

bill black; cere yellow; legs and toes yellow. Stomach contained remains of a rodent. Frequently seen during our journey in British E. Africa.]

116. *Poliohierax semitorquatus*. African Falconet.

*Falco semitorquata* A. Smith, Rep. Exp. 1836, p. 44: Old Latakoo, Bechuanaland.

a. ♀ ad. Akinyo River, Bakoro, 3600 ft. Feb. 2.

Total length in flesh:  $7\frac{3}{4}$  inches. Wing: 119 mm.

In good clean dress.

[Irides brown; bill light blue, tip black; cere red; legs and toes red. Stomach contained remains of a lizard. This was the only specimen seen, and was found sitting on a solitary thorn-tree beside a dry water-course.]

117. *Falco cuvieri*. African Hobby.

*Falco cuvieri* A. Smith, S. A. Q. J. i. 1830, p. 392: Kei River, Eastern Cape Colony.

a. ♂ ad. Narossura, 7000 ft. Nov. 2.

Total length in flesh: 12 inches. Wing: 233 mm.

A rich dark-coloured specimen in fresh new dress, and just completing the moult.

Apparently a rare bird in collections.

[Irides dark brown; bill bluish horn; cere yellow; legs and toes yellow. Stomach contained insects. Several seen in British E. Africa, but always very shy.]

118. *Rhyncodon biarmicus biarmicus*. South African Lanuer.

*Falco biarmicus* Temm. Pl. Col. i. 1825, pl. 324: Camdeboo Berg (Compass Berg), Cape Colony.

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 5.

Total length in flesh: 17 inches. Wing: 310 mm.

An immature specimen in good dress; it agrees in size with specimens from Cape Colony, which are apparently smaller than *F. b. tanypterus* Schl. (Abhandl. Geb. Zool. etc. 1841, p. 8, pls. 12 & 13: Nubia, cf. Rüpp. N. Wirb. 1835, p. 44), a subspecies that does not appear to be very well defined.

[Irides brown; bill blackish horn; cere light grey; legs and toes yellow. Only two seen.]

119. *Cerchneis tinnunculus carlo*. African Common Kestrel.

*Cerchneis tinnunculus carlo* Hart. & Neum. Journ. für Ornith. 1907, p. 592 : Bussidimo, nr. Harar, Abyssinia.

a. ♀ ad. Lengototo, 6000 ft. Nov. 7.

b. ♂ imm. Narossura, 5000 ft. Nov. 17.

c. ♀ ad. Akinyo River, Bakoro, 3600 ft. Feb. 2.

d. ♂ juv. E. slopes of Nakwai Hills, 3600 ft. Nov. 8.

Total length in flesh : ♂  $13\frac{3}{4}$  &  $12\frac{1}{4}$  inches ; ♀  $14\frac{1}{4}$  &  $14\frac{1}{8}$  inches. Wing : ♂ 238 & 227 mm. ; ♀ 257 & 254 mm.

Quite a good and sound race, being always darker and much more clearly marked below than *C. t. tinnunculus* (Linn. Syst. Nat. 10th ed. 1758, p. 90 : Sweden).

Both the females are adult, in worn plumage, and one has new feathering appearing on the mantle. The young male is assuming adult feathering on the breast, mantle, and rump. The other male is not quite fully adult, having dark bands across the tail.

Hartert and Neumann, in their description, point out that the figures of *C. t. arthuri* in the J. f. O. 1904, pl. xvi., represent this subspecies and have nothing to do with the true *C. arthuri*; this is quite correct.

[♂ ♀. Irides brown ; bill bluish horn ; cere yellow ; legs and toes yellow. Stomach contained mice, lizards, grasshoppers, and locusts. Not common in the Nakwai Hills.]

120. *Cerchneis rupicoloides arthuri*. Buxton's Kestrel.

*Tinnunculus arthuri* Gurney, List of Diurn. B. of Prey, 1884, p. 156 : Mombasa.

a. ♂ ad. Mt. Suswa. Sept. 26.

Total length in flesh :  $12\frac{1}{8}$  inches. Wing : 246 mm.

In good dress and but slightly worn.

This race of *C. r. rupicoloides* Smith (S. A. Q. J. 1830, p. 238 : Groene River, Namaqualand), from which it differs in being larger, is equal in size to *C. r. fieldi* Elliot (Publ. Field Mus., Orn. i. pt. ii. 1897, p. 58 : Silo Plain, Somaliland), but differs from that race in being always darker.

[Irides white ; bill bluish horn, yellowish at base ; cere yellow ; legs and toes yellow. I had just shot a specimen

of *Bubo lacteus* which lodged in the top of a tree, and as it was not quite dead it attracted a pair of these Kestrels. They were the only two of this species seen about whose identification I can be certain.]

121. *Cerchneis naumanni*. Lesser Kestrel.

*Falco naumanni* E. Fleischer, *Sylvan*, ein Jahrbuch für Forstmänner, Jäger und Jagdfreunde, von C. P. Laurop und V. F. Fischer; Marburg und Cassel, bei Joh. Chr. Kreiger, 1818, Part v. Art. 10, p. 174: Germany.

a. ♀ ad. Narossura, 5000 ft. Nov. 16.

b. ♂ imm. Loita, 6300 ft. Nov. 27.

Total length in flesh: ♂ 12 inches; ♀ 12½ inches.  
Wing: ♂ 229 mm.; ♀ 231 mm.

The male is assuming the adult feathering. The female is in good clean dress and but very slightly worn.

The part of the work 'Sylvan' examined by me at the British Museum in which the description of this Kestrel is found is bound in a volume dated on the outside 1817-1819. Fleischer's paper is dated 1817 at Leipzig, and is entitled "Zwei neue Falken," and comes in that part of the volume covered by the year 1818.

There is a reprint of this rare paper in the *Orn. Monatsberichte*, 1898, pp. 142-144, by Prof. Reichenow, and an interesting letter from Dresser in the 'Ibis,' 1875, p. 515, on the same subject.

[♂. Irides brown; bill bluish horn, base yellowish; cere yellow; legs and toes yellow, claws white. ♀. Similar. except cere orange-yellow. Stomach contained locusts. A large number of Kestrels were seen, apparently of this species.]

122. *Bubo bubo ascalaphus*. Egyptian Spotted Eagle Owl.

*Bubo ascalaphus* Sav. *Descript. de l'Égypte*, 1810, p. 295, pl. iii.: Egypt.

a. ♀ ad. Loita, 6600 ft. Oct. 5.

Total length in flesh: 19½ inches. Wing: 353 mm.  
Weight 2¼ lbs.

In somewhat worn dress.

Savigny's figure of this Owl shows a bird with plain buffy legs and thighs, and with very narrow bands on the under-side of the tail, otherwise it agrees perfectly with the majority of specimens of this species.

Both *B. a. barbarus* and *B. a. desertorum* were described from northern Tunisia and Algeria and southern Tunisia and Algeria respectively, cf. Erlanger, O. M. 1897, p. 192; and *B. a. trothæ* Reichw. O. M. xiv. 1906, p. 10, was described from German S.W. Africa, but Prof. Neumann has shown in the J. f. O. 1914, p. 36, that *B. a. trothæ* Reichw. has nothing to do with *B. ascalaphus* and is a colour form of *B. maculosus*.

[Irides yellow; bill black; feet greyish black. Nesting. Appears to be common. The oviduct of the specimen obtained contained an egg.]

123. *Bubo africanus cinerascens*. Greyish-spotted Eagle Owl.

*Bubo cinerascens* Guér. Rev. Zool. 1843, p. 321: Abyssinia.

a. ♀ ad. Hills N. of Maroto, 3900 feet. Jan. 24.

Total length in flesh:  $17\frac{1}{2}$  inches. Wing: 310 mm.

In somewhat worn dress.

As shown by Prof. Neumann "*maculosus*" must give place to "*africanus*" of Temm., cf. J. f. O. 1914, pp. 37 & 38.

*Asio maculosus americanus* Oberh. (Proc. U.S. Nat. Mus. Wash. 1905, p. 856: Kilimanjaro) appears to be a synonym of *B. a. cinerascens*.

[Irides very dark brown, eyelids pink flesh; bill black; feet dark plumbeous. Two of these Owls were found perched in a Euphorbia tree.]

124. *Bubo lacteus*. Verreaux's Eagle Owl.

*Strix lactea* Temm. Pl. Col. ii. 1820, pl. iv.: Senegal.

a. ♂ ad. Mt. Suswa. Sept. 26.

b. ♂ ad. Lake Naivasha, 5700 ft. Dec. 4.

c. ♂ ad. Rift Valley, 30 miles N.W. of Baringo, 2800 ft. Dec. 29.

d. ♂ ad. Turkwel River. Jan. 15.

e. ♂ ad. Akinyo River, Bakoro, 3600 ft. Feb. 2.

f, g. ♂ ♀ juv. Kamchuru, Lobor, 3200 ft. Feb. 12.

Total length in flesh : ad. 25-22½ inches ; young 14 and 13 inches. Wing of adults : 450-420 mm. Weight 3½ lbs.

All the adults are rather worn, except the one from Akinyo River, which, being much browner above, is probably a bird of the year.

The two nestlings are assuming full feathering, which is distinctly brown above.

The plate in the Pl. Col. shows a very brown-backed bird this was probably taken from a bird of the year, and I expect some latitude must be allowed for the clear coloration of the upper parts.

[Irides brown, eyelids black ; bill bluish horn ; feet greyish flesh-colour, dark brown, blue grey, dirty grey, or bluish. Young have eyelids brown ; bill black, tip of lower mandible whitish ; feet plumbeous. Stomach contained mice.]

125. *Otus capensis*. Cape Scops Owl.

*Scops capensis* A. Smith, S. A. Q. J. ii. 1834, p. 314 : South Africa.

a, b. ♂ ad. Nakwai Hills, 3800 & 3900 ft. Feb. 6.

Total length in flesh : 7½ & 7¼ inches. Wing : 138 & 137 mm.

Both are in good clean normal plumage, and agree perfectly with specimens from South Africa.

There appear to be three phases of plumage of this bird: 1st, grey, that which might be designated as the normal ; 2nd, a rufous phase (*cf.* Sclater, Ibis, 1912, p. 5) ; and 3rd, a slaty-grey phase.

Messrs. Gunning & Roberts, in the Ann. Transvaal Museum, vol. iii. 1911, p. 111, describe three new subspecies of this Owl as follows :—

*Pisorhina capensis intermedia* : Mødderfontein, Transvaal.

„ „ *grisea* : Bethulie, Orange Free State.

„ „ *pusilla* : Boror, Portuguese E. Africa.

The series in the National collection shows that great

individual variation occurs in this little Owl, and I cannot see any constant character sufficiently well marked to warrant separation into races, and therefore, without more convincing proof, I must place Gunning & Roberts' names as synonyms.

The other named races of this Owl are:—*Pisorhina c. ugandæ* Neum. J. f. O. 1899, p. 56: North Uganda; *P. c. leucopsis* Hartl. Rev. Zool. 1849, p. 496: Island of San Thomé; *P. c. icterorhyncha* Shelley, Ibis, 1873, p. 138: Fantee, Gold Coast; and *P. c. scapulata* Boc. Jorn. Lisboa, xlviii. 1888, p. 229: Angola.

[Irides yellow or dull yellow; bill blackish horn, tip of lower mandible yellow, or upper half of culmen and lower half of lower mandible light yellow; feet dirty grey. Heard at nearly all our camps.]

126. *Otus leucotis leucotis*. White-faced Scops Owl.

*Strix leucotis* Temm. Pl. Col. vol. ii. 1824, pl. xvi.: Senegal.

*a.* ♂ ad. Nakwai Hills, 3500 ft. Feb. 7.

Total length in flesh: 10½ inches. Wing: 188 mm.

In worn dress and having a very distinct black patch on the head.

[Irides rich yellow; bill greenish horn; feet dirty grey. Stomach contained mice. This was the only specimen seen, and was perched in a stunted thorn-tree.]

In the 'Ibis' for 1906, p. 660, Mr. Ogilvie-Grant says that Erlanger renamed the typical form, which statement is not quite correct, and at the same time Mr. Grant gives a new name to the southern race.

I have carefully examined the series in the National collection and agree with Mr. Grant that two races certainly exist, and I am by no means sure that a third will not have to be recognised.

The races are as follows:—

*OTUS LEUCOTIS LEUCOTIS* Temm.: Senegal. Represented in the Museum by specimens from Gambia.

*Range.* Gambia, Sierra Leone, Nigeria, White Nile, Khartoum to Somaliland, and British East Africa.

Birds from Khartoum and Somaliland are somewhat different from those from Gambia, especially in the young bird, and a larger series may show that this form is distinct. If this is so it would bear the name *O. l. nigrovertex* Erl. (J. f. O. 1904, p. 233 : Gambo, Abyssinia).

OTUS LEUCOTIS GRANTI.

*Pisorhina leucotis granti* Kollibay, Orn. Monatsb. 1910, p. 148 : South-west Africa.

*Range.* Damaraland and Angola, east to the Transvaal, Natal, and Nyasaland.

As shown by Kollibay, op. cit., the name *Scops erlangeri* O. Grant (Ibis, 1906, p. 660 : Nyasaland) is preoccupied by *Pisorhina scops erlangeri* Tschusi (Orn. Jahrb. 1904, p. 101 : Tallah, Tunisia), though he is not correct in stating that Mr. Grant described his bird from south-west Africa.

The single Angola bird before me is somewhat paler than more southern specimens, and should a large series show this character to be constant, it would perhaps need separating.

127. *Strix woodfordi*. Woodford's Brown Owl.

*Noctua woodfordi* A. Smith, S. A. Q. Journal, ii. 1834, p. 312 : South Africa.

*a.* ♂. Mt. Maroto, 4300 ft. Jan. 30.

Total length in flesh : 14 inches. Wing : 249 mm.

In good fresh plumage and in the cinnamon phase.

I have carefully examined all the specimens of this Owl and have come to the conclusion that only one race exists, and that the characters pointed out for the supposed races are merely individual. It is a very variable species, and there appears to be at least two or three phases, *i. e.* a blackish, a cinnamon, and a greyish.

In one specimen from Ugogo in the Museum collection two phases occur on the same bird, the head and part of the mantle being blackish and the rest of the plumage being cinnamon.

I at first thought that the cinnamon phase represented the young and the blackish the full adult (as, I believe, is the

case in the European Brown Owl, where the paler, less dark, birds are the young of the year), but a young bird from British E. Africa, still in downy dress, is assuming a blackish plumage.

It would, however, appear that the first dress (*i. e.* that in which the young leave the nest) is always pale and rufous; though the feathering being very soft and downy precludes it being confounded with more adult birds.

The named races of this Owl are as follows :—

*Surnium umbrinum* Hengl. J f. O. 1863, p. 12: Bege-meder, Abyssinia.

*Syrnium nigricantius* Sharpe, Ibis, 1897, p. 449: Mpapwa, German East Africa.

*Syrnium woodfordi* var. *suahelicum* Rehw. Werth. Mitth. Hochl. 1893, p. 272: German East Africa.

*Syrnium woodfordi* var. *sansibaricum* Rehw. op. eit.: Zausibar.

[Irides brown, eyelids light brown; bill yellow; feet yellow. Stomach contained insects. Only two were seen, in the thick bush along a small stream.]

128. *Glaucidium perlatum*. African Pearl-spotted Owlet.  
*Strix perlata* Vieill. N. D. d'Hist. Nat. vol. vii. p. 26: Senegal.

a. ♀. Kito, 60 miles N.W. of Baringo, 4100 ft. Jan. 2.

b. ♂. Kerio River, 3400 ft. Jan. 5.

c. ♂. 10 miles N.W. of Kerio River, 3600 ft. Jan. 5.

d. ♂. Weiwei River, Rift Valley, 3100 ft. Jan. 7.

e. ♀. Nakwai Hills, 3900 ft. Feb. 6.

Total length in flesh: ♂  $8\frac{1}{4}$  & 8 inches; ♀  $8\frac{1}{2}$  &  $7\frac{3}{4}$  inches. Wing: ♂ 111–107 mm.; ♀ 107 mm.

At the first glance at the series of this Owl in the Museum collection there appears to be more than one form, but when they are laid out in their localities it becomes at once apparent that no stress can be laid upon any particular character which might warrant separation.

The two most striking plumages are that which is fully spotted and that which is practically plain on the upper parts.

These two apparently dissimilar dresses can either be put down to colour phases, or to immature and adult plumages.

The first theory is at once disposed of by the fact that every gradation between the two is found, *i.e.* specimens with spotted heads and plain mantles, specimens with almost plain heads and spotted mantles, and almost every stage between. The second theory is perhaps more feasible, but among the series I cannot place my hand on one specimen that is just out of the nest; though there are two from Nyasaland on which the note is written "taken as nestlings and kept 5 months." These two have brown heads with but very few and very narrow streaks, and the mantle is but slightly spotted.

Taking this as the first dress, we have a single specimen from Makalaka that is just completing the moult, in which the new mantle is normally spotted and the feathers of the head are still brown (as in the two Nyasaland specimens), and new *spotted* feathers are replacing them.

Therefore this seems to point to the plainer birds being young and the spotted ones being adult.

This theory seems correct until we come to specimens that have the markings on the head more barred than spotted. Is this individual variation?

North-western, north-eastern, and eastern birds in what I take to be adult dress have the spots on the head rather smaller than southern specimens, but many individuals can be found that are hardly distinguishable.

Of the five specimens in this collection two are apparently young and the other three are apparently adult, though one has less spotting on the mantle than the other two.

A series of almost fully fledged nestlings taken from the nest would be of great value in settling the question of plumage.

Reichenow has himself (Vögel Afr. i. p. 674) suppressed his *G. kilimense* (Orn. Monatsb. 1893, p. 178: Kilimanjaro).

[Irides yellow or light yellow; bill greenish yellow or

greenish horn ; cere dark green ; feet yellow, greenish yellow, or dirty yellow. Tolerably common wherever found.]

129. *Tyto alba affinis*. South African Barn-Owl.

*Strix affinis* Layard, Birds of S. Afr. 1867, p. 43 : Cape of Good Hope.

*a, b.* ♂ ad. Annamuget, Bakoro, 3700 ft. Feb. 1.

*c.* ♀ ad. 20 miles East of Lobor Hills, 3600 ft. Feb. 3.

Total length in flesh : ♂ 14 & 12 $\frac{3}{4}$  inches ; ♀ 14 inches.  
Wing : ♂ 292 & 282 mm. ; ♀ 294 mm.

All are in good dress.

The African race of the Barn-Owl should certainly be kept separate and is a very distinct form.

The name *Strix maculata* Brehm (Naumannia, 1858, p. 220 : N.E. Africa ; id. 1855, p. 270) is preoccupied by *Strix maculata* Vieill. (N. D. d'Hist. Nat. vii. 1817, p. 45 : Paraguay).

[Irides brown ; bill white, base flesh-colour ; feet dirty white or dirty flesh. Appears to be local. One of the three specimens was caught by a porter, who climbed a tree and seized it whilst asleep.]

130. *Poicephalus meyeri saturatus*. Sharpe's East African Parrot.

*Poicephalus saturatus* Sharpe, Bull. B. O. C. vol. xi. 1901, p. 67 : N. Ankole, Uganda.

*a.* ♂ ad. Amala River, 5500 ft. Oct. 15.

*b.* ♂ ad. 40 miles N.W. of Baringo, 3400 ft. Jan. 1.

*c.* ♀ ad. Mt. Maroto, 3700 ft. Jan. 25.

*d.* ♂ ad. Payera Dist., 3000 ft. Feb. 19.

Total length in flesh : ♂ 9, 9 $\frac{1}{8}$ , & 9 $\frac{1}{4}$  inches ; ♀ 9 $\frac{1}{2}$  inches.  
Wing : ♂ 154–149 mm. ; ♀ 150 mm.

One of the January birds is in new dress, the others are a little worn, and both the October and January birds are moulting.

[Irides red ; bill very dark horn, blackish, or blackish-horn ; legs and toes dark grey or dark brown. Fairly plentiful wherever found.]

In naming these specimens I have had to examine the

whole series in the British Museum, and have come to the following conclusions as regards the races:—

*POICEPHALUS MEYERI MEYERI.*

*Psittacus meyeri* Cretz. Atlas, 1826, p. 18, pl. xi. : Kordofan.

Of this, *Phaeocephalus xanthopterus* Henglin (J. f. O. 1863, p. 271 : between Djur and Kosanga, Bahr el Ghazal), *Poicephalus meyeri erythrae* Neum. (Orn. Monatsb. 1899, p. 25 : Anseba River, Bogosland) and *P. m. abessinicus* Zedl. (Orn. Monatsb. 1908, p. 174 : S. Erythrea), are synonyms.

Above earthy washed with green, rump washed with blue.  
*Range.* Bahr el Ghazal, Kordofan, and Abyssinia.

*POICEPHALUS MEYERI MATSCHIEI.*

*Poicephalus matschiei* Neum. Journ. für Orn. 1898, p. 501 : Ugogo, German E. Africa.

Very similar to *P. m. meyeri*, perhaps rather darker above and blue on rump brighter.

*Range.* German East Africa and Nyasaland.

*POICEPHALUS MEYERI DAMARENSIS.*

*Poicephalus damarensis* Neum. op. cit. : Ochimbor, Damaraland.

Rather pale earthy above, blue rump, no yellow band on head.

*Range.* Damaraland to Lake Ngami.

*POICEPHALUS MEYERI REICHENOWI.*

*Poicephalus reichenowi* Neum. op. cit. : Malange, North Angola.

Large race, blue rump, no yellow band on head.

*Range.* Angola, and probably western basin of Congo.

*POICEPHALUS MEYERI TRANSVAALENSIS.*

*Poicephalus meyeri transvaalensis* Neum. Orn. Monatsb. 1899, p. 25 : Transvaal.

Above earthy without green wash, rump bluish, below on the average more blue than green.

*Range.* Transvaal, Matabeleland, Mashonaland, East Bechuanaland, Tete on the Zambesi.

## POICEPHALUS MEYERI SATURATUS.

*Poicephalus saturatus* Sharpe, Bull. B. O. C. vol. xi. 1901, p. 67 : N. Ankole.

Of this, *P. m. virescens* Reichw. (Vög. Afr. ii. 1902, p. 12 : Kavirondo), and *P. m. nyansæ* Neum. (Nov. Zool. 1908, p. 383 : Unyoro, Uganda) are synonyms.

A dark race, below and rump on the average green.

*Range.* Uganda, British East Africa, and Ruwenzori.

## POICEPHALUS MEYERI NEAVEI.

*Poicephalus meyeri neavei* C. Grant, Bull. B. O. C. vol. xxxv. 1914, p. 19 : Kaluli Valley, Belgian Congo.

"Most nearly allied to *P. m. saturatus* Sharpe, but generally darker throughout, on the average bluer below, and having the blue rump of *P. m. damarensis*."

*Type.* ♀ ad. Kaluli Valley, Belgian Congo. Collected on the 27th of April, 1907, by S. A. Neave. Wing 155 mm.

Named in honour of Mr. S. A. Neave.

*Range.* Eastern Belgian Congo and northern Rhodesia to Angoniland.

Though these Parrots vary to a considerable amount individually and no single character of a single specimen can be fixed down, yet when examined collectively and the series laid out geographically, average differences exist which preclude all these Parrots being placed under one name. Therefore six of the described races are recognisable, and (perhaps unfortunately) I have been compelled to describe a seventh.

131. *Agapornis pullarius*. North African Love-Bird.

*Psittacus pullarius* Linn. Syst. Nat. 10th ed. 1758, p. 102 : Æthiopia = Nubia.

a. ♂ ad. Payera Dist., 3000 ft. Feb. 19.

Total length in flesh :  $6\frac{1}{8}$  inches. Wing : 89 mm.

In worn and rather faded dress and in moult.

[Irides brown ; bill : upper mandible red, lower whitish ; legs and toes dirty grey. Several seen amongst the bamboo.]

Eastern and western specimens agree in size and coloration, except that the majority of the adults from the latter

locality have a more decided green wash on the inner webs of the flight-feathers on their underside. This character is found in young birds from both places and can be traced in east African adults, though the majority of these have more blackish inner webs.

*A. p. ugande* Neumann (Nov. Zool. vol. xv. 1908, p. 38 : Entebbe) does not appear to differ from northern birds. Unfortunately, Neumann did not compare his specimens with Nubian birds, but with western ones. Western specimens are certainly somewhat different from eastern ones, both in the way I have pointed out and in the darker blue rump of some of the western specimens, but at present I do not consider the evidence sufficient to warrant naming a new race.

132. *Coracias abyssinus abyssinus*. Abyssinian Roller.

*Coracias abyssinus* Bodd. Tabl. Pl. Enl. 1783, p. 38 : Abyssinia ; cf. D'Aub. Pl. Enl. vol. iii. 1774, p. 175, pl. 626.

a, b. ♂ ♀ ad. Turkwel River, 1900 ft. Jan. 14.

c. ♀ ad. Nakwai Hills, 3600 ft. Feb. 8.

Total length in flesh : ♂  $16\frac{1}{4}$  inches ; ♀  $16\frac{3}{4}$  &  $15\frac{1}{4}$  inches.  
Wing : ♂ 155 mm. ; ♀ 160 & 153 mm.

All are in good dress and a little worn.

[Irides brown ; bill black ; legs and toes dirty yellow or dirty greenish yellow. A good many seen, but not plentiful.]

133. *Coracias caudatus caudatus*. Lilac-breasted Roller.

*Coracias caudata* Linn. Syst. Nat. 12th ed. i. 1766, p. 160 : Angola.

a. ♂ ad. Mau, 7000 ft. Sept. 30.

Total length in flesh :  $15\frac{1}{4}$  inches. Wing : 170 mm.

In good dress and just a little worn.

[Irides light brown ; bill black ; legs and toes dirty greenish yellow.]

In naming this bird I have carefully compared and examined all the Rollers from southern, eastern, and western Africa, and cannot see any characters which warrants

separation into races, except in the case of the quite distinct *C. c. lorti* Shelley (Ibis, 1885, p. 399 : Somaliland) ; therefore *C. c. suahelicus* Hart. & Neum. (Journ. für Orn. 1907, p. 593 : Usagara, G. E. Africa) becomes a synonym, as none of the characters given by the authors appear to hold good.

In the Journ. für Orn. 1905, p. 459, Erlanger suggests that further material may possibly prove that *C. abyssinus* and its subspecies should be considered subspecies of *C. c. caudatus*. This, however, would completely defeat the common sense idea of subspecies, seeing that both *C. c. caudatus* and *C. a. abyssinus* are found together and cannot therefore become geographical races of each other.

134. *Coracias nævia nævia*. White-naped Roller.

*Coracias nævia* Daud. Traité, vol. ii. 1800, p. 258: Senegal.

a. ♀ ad. Kijabe, 6400 ft. Sept. 24.

b. ♂ ad. Mt. Maroto, Maroto Stream. Jan. 26.

Total length in flesh : ♂  $14\frac{3}{4}$  inches ; ♀  $14\frac{1}{4}$  inches.  
Wing : ♂ 194 mm. ; ♀ 179 mm.

Both in good dress and but little worn.

[Irides brown ; bill black ; legs and toes dirty yellow.  
Several seen.]

In naming this bird I have examined the whole series in the British Museum, and have come to the conclusion that only two races exist of this Roller, as follows :—

*CORACIAS NÆVIA NÆVIA* Daud. op. cit.

Of this, besides the four names quoted by Dresser, Ibis, 1890, p. 385, *C. n. sharpei* Rehw. (Orn. Monatsb. 1899, p. 192 : Ussandani, G. E. A.) becomes a synonym.

Top of the head lilac ; below brownish lilac.

*Range.* Senegal, Gambia, Gold Coast, Abyssinia, Somaliland, Sudan, Uganda, B. E. Africa, G. E. Africa.

*CORACIAS NÆVIA MOSAMBICUS* Dresser.

*Coracias mosambicus* Dresser, Ibis, 1890, p. 386 : Mozambique.

Of this, *C. olivaceiceps* Sharpe (Cat. Birds, vol. xvii. 1892, p. 25 : South Africa) becomes a synonym.

Top of head green ; below washed with purple.

*Range.* Portuguese E. Africa, Rhodesia, Transvaal, Orange River Colony, Bechuanaland, Damaraland, and Angola.

It is of interest to note that the young bird of one race is not distinguishable from the young bird of the other race, and both have the top of the head green.

Two apparently adult specimens from Gambia and one from British E. Africa have a wash of green on the top of the head.

In the adults of *C. n. mosambicus* the lilac of the head fades to a brownish tone, and worn birds, if compared with freshly moulted specimens, appear at first sight to belong to different races.

135. *Corythornis cristata*. Malachite - crested Kingfisher.

*Alcedo cristata* Vroeg, Cat. Adumb. 1764, No. 55 : Cape of Good Hope.

This name preoccupies *Alcedo cristata* Linn. (Syst. Nat. 12th ed. i. 1766, p. 178 : India) and antedates *Alcedo cyanostigma* Rüpp. (Neue Wirb. Vög. 1835, p. 70, pl. xxiv. : Zana See, Abyssinia), which latter would, however, be available, should the northern bird prove to be a different race.

a. ♀ ad. Amala River, 5300 ft. Oct. 23.

b. ♀ ad. Lakwa, Naam River, 3100 ft. Feb. 16.

Total length in flesh :  $5\frac{3}{4}$  &  $5\frac{1}{2}$  inches. Wing: 57 & 55 mm.

Both are somewhat worn and faded.

[Irides brown; bill red; legs and toes red. Stomach contained aquatic beetles.]

I have recently spent some time carefully examining Linnæus' original copy of Vroeg's Catalogue in the Linnean Society's library, and have come to the conclusion that it is as good a scientific production as Lichtenstein's Catalogue, or the quite anonymous "Tunstall's" Orn. Brit., and must therefore be accepted.

In the Smiths. Misc. Coll. vol. xlvii. 1905, pp. 332-347, Messrs. Sherborn & Richmond have given partial reprints and discussed the position of the names, but neither have quoted

the Dutch descriptions, which, when used in conjunction with the latin descriptions, greatly help to elucidate each named species.

I have not gone into all the definitions of the names as given by Richmond, but find that he is certainly right in the two so far used in my present paper.

In support of the use of these two names, I give the Dutch descriptions of each ; the Latin ones can be found in the afore-mentioned paper by Sherborn.

“280. Klein Duikertje (*Ruficollis*) Lin. Sp. O. Is zeer zeldzaam in onze Meiren.

281. Idem't Wyfje (*Præcedentis Femina*). Is nog kleinder en ligter van koleur.”

*Colymbus ruficollis* has been supported by me in the ‘Ibis,’ 1915, p. 49, under *Polioccephalus ruficollis capensis*.

“55. Kleine Geknifde Ysvogel (*Cristata*) Lin. Sp. O. Deze soort verschilt weinig in kleur met ons Inlandich, doch de sierlyke achter over hangende knif, en ontrend de helft kleinder zynde, maakt een kennelyk onderschied. Deszelfs woonplaats is Cabo de goede Hoop, hy is noch raarder dan de vorige.”

The latter remark refers to *Alcedo anea* Vroeg.

I am not sure that confusion may not be eliminated by giving the authority as “Vroeg” and not “Pallas in Vroeg,” seeing that the former name is clearly printed on the cover of the Catalogue, and moreover it is stated that Vroeg is responsible for the arrangement of the collection, and therefore why not the nomenclature?

136. *Ispidina picta*. North African Pigmy Kingfisher.

*Todus pictus* Bodd. Tabl. Pl. Enl. 1783, p. 49 : “Juida,” Africa ; cf. D'Aub. Pl. Enl. vol. viii. pl. 783.

a. ♀ ad. 20 miles S. of Baringo, 3800 ft. Dec. 24.

Total length in flesh :  $4\frac{1}{2}$  inches. Wing : 51 mm.

In fresh new dress.

[Irides brown ; bill red, tip blackish ; legs and toes red.]

137. *Halcyon leucocephala leucocephala*. Senegal White-headed Kingfisher.

*Alcedo leucocephala* P. L. S. Müller, Linn. Nat. Syst. Suppl. 1776, p. 94: Senegal.

a. ♂ ad. Loita, 6300 ft. Oct. 5.

b. ♀ ad. Narossura River, 5000 ft. Nov. 12.

c. ♀ ad. Nr. Lake Hannington. Dec. 25.

Total length in flesh: ♂ 8 inches; ♀ 9 & 8 $\frac{3}{4}$  inches.  
Wing: ♂ 102 mm.; ♀ 107 & 103 mm.

All are in good dress and only a little worn.

The two females are not so black on the mantle, and the blue of the wings and tail is slightly more greenish than in the male.

[Irides brown; bill red; legs and toes red.]

In naming these birds I have examined the whole series of this Kingfisher in the National Collection, and I have come to the following conclusions in regard to the races:—

HALCYON LEUCOCEPHALA LEUCOCEPHALA P. L. S. Müll.  
op. cit.

Of this, *H. l. centralis* Neum. (Journ. für Orn. 1905, p. 189: Bussissi, Victoria Nyanza) becomes a synonym, as also *Halcyon rufiventer* Sw. (Birds W. Afr. vol. ii. 1837, p. 101: Senegal).

Belly dark; wings and tail pure cobalt.

Female darker on the head, blue more greenish than in the male.

Range. Senegal, south to Cameroon, east to N.E. and E. Africa, south to German East Africa. There are in the Museum four specimens from Ruwenzori, where it evidently overlaps *H. l. ogilviei*.

HALCYON LEUCOCEPHALA SEMICERULEA.

*Alcedo semicerulea* Gmel. Syst. Nat. i. 1788, p. 457: Yemen, Arabia.

Belly dark, wings and tail cobalt washed with violet.

There is no apparent difference in the sexes.

Range. Confined to Arabia.

*Alcedo semicærulea* Forskål, Descr. Anim. 1775, p. 2, cannot be accepted as the first description, as none of these names are truly binomial.

HALCYON LEUCOCEPHALA ACTEON.

*Dacelo acteon* Less. Traité, 1831, p. 247 : "îles du Cap Vert (San Yago)"; cf. Pucheran, Rev. et Mag. Zool. 1853, p. 392.

Of this, *Halcyon erythrorhynchus* Gould (P. Z. S. 1837, p. 22 : St. Jago, Cape Verde) becomes a synonym, as shown both by Pucheran and Hartlaub, Journ. für Orn. 1855, p. 423.

Confined to the Cape Verde Islands and differs from *H. l. leucocephala* in being slightly larger and having the head and neck whiter.

HALCYON LEUCOCEPHALA SWAINSONI.

*Halcyon swainsoni* A. Smith, S. A. Q. Journ. 1834, p. 143 : Interior of South Africa.

Of this, *Halcyon pallidiventris* Cab. (Journ. für Orn. 1880, p. 349 : Angola) becomes a synonym.

Belly and under wing-coverts pale; wings and tail almost pure violet.

*Range.* South Africa (Transvaal, Portuguese E. Africa and Rhodesia to the Zambesi; west to Angola).

HALCYON LEUCOCEPHALA HYACINTHINA.

*H. semicærulea hyacinthina* Reichw. Journ. für Orn. 1900, p. 249 : Zanzibar.

I have not been able to examine any specimens from Zanzibar.

HALCYON LEUCOCEPHALA OGILVIEI.

*Halcyon leucocephala ogilviei* C. Grant, Bull. B. O. C. vol. xxxv. 1914, p. 28 : South Angoniland.

Differs from *H. l. leucocephala* in having the wings and tail coloured as in *H. l. swainsoni*, and from the latter in having the belly and under wing-coverts almost as dark as *H. l. leucocephala*.

*Type.* ♀ ad. S. Angoniland, Nyasaland. Collected in October, 1900, by Lt.-Col. Manning.

This race forms a link between *H. l. swainsoni* and *H. l. leucocephala*. The sexes do not differ.

*Range*. Nyasaland, through the lake districts to Ruwenzori. Two specimens from Ruwenzori in the British Museum collection.

138. *Halcyon senegalensis cyanoleuca*. Angola Kingfisher.

*Alcedo cyanoleuca* Vieill. N. D. d'Hist. Nat. vol. xix. 1818, p. 401: Angola.

*a.* ♂ ad. Amala River, 5300 ft. Oct. 23.

In fresh new plumage, the wings being still in moult, and having the top of the head washed with blue.

Total length in flesh :  $9\frac{1}{2}$  inches. Wing : 106 mm.

[Irides brown ; bill : upper mandible red, lower black ; legs and toes black. Stomach contained fish and frogs.]

In naming this specimen I have had to examine the whole series of this Kingfisher in the National Collection, and I have come to the conclusion that this race and *H. s. senegalensis* occur together at least for part of their range, but until a larger series of carefully sexed specimens is available, and especially of young birds from the nest with the actual parents belonging to them, no definite conclusion can be come to.

Since the publication of my description of *H. s. superflua* (Bull. B. O. C. xxxv. 1914, p. 28) Mr. Ogilvie-Grant has kindly pointed out to me that Vieillot, in his original description, gives "la tête, le dessus du cou, le dos, les ailes et la queue sont d'un bleu d'aigue-marine," and that, therefore, this new subspecies must become a synonym of "*cyanoleuca*": with this conclusion I am inclined to agree.

The evidence before me points to the one race being confined to the south and extending into east Africa, and the other confined to the north-west and also occurring in east Africa, where many specimens bear the characters of both, which might be expected where subspecies overlap. The southern bird does not, however, in my opinion, meet with the north-western form throughout its range.

The range of the two races appears to be as follows :—

*HALCYON SENEGALENSIS SENEGALENSIS.*

*Alcedo senegalensis* Linn. Syst. Nat. 12th ed. 1766, p. 180 : Senegal.

Head ashy-grey in adults ; rest of upper parts varying in colour according to light, but always somewhat darker than *H. s. cyanoleuca*.

Young much darker than adults ; head washed with blue ; bill practically black ; below with vermiculations.

Immature birds with almost, or quite, fully-coloured bills have the head still washed with blue.

*Range.* Senegal, south to Cameroon, and north Angola east to French Congo and north-east and east Africa.

One specimen from Fernando Po in the National Collection appears to belong to this race, and only differs from mainland birds in lacking the dusky tip to the upper mandible.

*HALCYON SENEGALENSIS CYANOLEUCA.*

*Alcedo cyanoleuca* Vieill. op. cit.

Blue of the back extending over the head in all ages. Superciliaries white ; black round eye extending backwards over the ear-coverts. This latter character, though constant in this race, is found in individuals of the other race.

The young bird is altogether paler than the young of *H. s. senegalensis*, and has a distinct superciliary streak and black line over the ear-coverts.

*Range.* Zululand and Transvaal, through Matabeleland to Damaraland and south Angola, eastwards to east Africa, where it runs into and apparently interbreeds with *H. s. senegalensis*.

The other names that have been given to this Kingfisher are :—

*Halcyon senegalensis fuscopileus* Reichw. (Orn. Monatsb. 1906, p. 171 : Jaunde, Cameroon).

*Halcyon senegalensis superflua* C. Grant, Bull. B. O. C. vol. xxxv. 1914, p. 28 : Limpopo River. Wing given as 111 mm.

*Halcyon senegalensis cinereicapillus* Mearns, Proc. U. S. Nat. Mus. vol. xlviii. 1915, p. 391 : Kisingo, Uganda. Wing given as 106 mm. All of these would appear to be synonyms of either one race or the other.

It is worthy of note that Vieillot, in his description of *Alcedo cyanoleuca*, gives the bill as "rouge et terminé de noir," which led me to believe that possibly after all his name had no reference to the bird with the wholly black under-mandible. But on referring back to Temminck's Cat. Syst. du Cab. Orn. 1807, pp. 70 & 215, it will be found on p. 215 that the bill is given as "mandibule supérieure rouge vif, pointe noire ainsi que toute la mandibule inférieure."

In Jardine's Contributions to Ornithology for 1849 is a paper by Dr. Hartlaub entitled "A systematic index to a series of descriptions of Birds published by C. J. Temminck in his Cat. Syst. Cab. Orn." In this Dr. Hartlaub states that many of Vieillot's descriptions were either copied from Temminck's pamphlet, or founded on an examination of the same specimens; and that most of the South African birds, in the collection, had been brought home by Levaillant. This would account for *H. cyanoleuca* not being mentioned by either Pucheran, Rev. et Mag. Zool. 1853, or Hartlaub, Journ. für Orn. 1855, as being among Vieillot's types.

139. *Halcyon chelicuti*. Striped Kingfisher.

*Alaudo chelicuti* Stanley, Salt's Abyss. 1814, p. lvi: Chelicut, Abyssinia.

a. ♀. Loita, 6300 ft. Oct. 4.

b. ♂. Amala River, 5300 ft. Oct. 23.

c. ♀. Akinyo River, Bakoro, 3600 ft. Feb. 2.

Total length in flesh: ♂ 7 inches; ♀  $7\frac{1}{8}$  & 7 inches. Wing: ♂ 81 mm.; ♀ 84 & 83 mm.

Both the October birds are in good dress and one is still moulting; the February one is somewhat worn, and has the tail washed with blackish, and very little blue on the wings; this being probably due to fading.

I can see no racial differences between eastern and western or northern and southern specimens.

[Irides brown; bill black, base of lower mandible red; legs and toes reddish black; black in front and red behind in the female from Loita.]

140. *Bucorvus abyssinicus*. Abyssinian Ground Hornbill.

*Buceros abyssinicus* Bodd. Tabl. Pl. Enl. 1783, p. 48 : Abyssinia, cf. Lath. Syn. Birds, vol. i. 1781, p. 347.

a. ♂ ad. 70 miles N.W. of Baringo, 3500 ft. Jan. 3.

Total length in flesh :  $41\frac{1}{4}$  inches. Wing : 545 mm.

In faded brownish dress, new black feathering appearing all over.

[Irides brown; bill black, base of upper mandible striped white, red, and black; bare skin blue; legs and toes black. Stomach contained ants and hoofs of a goat. I noticed these birds generally in small parties of from three to five individuals, either walking in the long rough grass, or more rarely perched in trees. They were nearly always very wild and difficult to shoot.]

141. *Lophoceros hemprichii*. Hemprich's Hornbill.

*Buceros, Lophoceros, hemprichii* Ehr. Symb. Phys., Av. 1828, fol. aa. footnote 3 : Abyssinian coast-lands.

a. ♀ ad. Mt. Maroto, 4500 ft. Jan. 29.

Total length in flesh :  $23\frac{1}{4}$  inches. Wing : 263 mm.

A good deal worn and faded, and in moult.

[Irides brown; bare skin sulphur-yellow; bill : upper mandible at base light reddish white, near cutting-edge darker, tip mahogany red, centre black; lower mandible at base reddish brown, centre black, tip mahogany red, cutting-edge black; legs and toes black. I only saw one pair of this Hornbill, one morning soon after daybreak.]

142. *Lophoceros nasutus nasutus*. North African Gray Hornbill.

*Buceros nasutus* Linn. Syst. Nat. 12th ed. i. 1766, p. 154 : Senegal.

a. ♂ ad. Amala River, 5500 ft. Oct. 12.

b. ♂ ad. Narossura River, 5000 ft. Nov. 16.

c. ♂ ad. Kamchuru, Lobar. 3200 ft. Feb. 11.

Total length in flesh:  $20\frac{1}{4}$ ,  $20\frac{1}{4}$ , & 20 inches. Wing: 229, 223, & 222 mm.

All three are in rather worn dress.

[Irides brown; bill black, with cream patch on sides of upper mandible and streaks of same colour on lower; legs and toes black. This is one of the rarer Hornbills, and seems only to be found locally.]

The range of this race appears to extend from Senegal to the Niger, eastward to north-east Africa and south to British E. Africa; its place in Damaraland and Nyasaland, southward to the Vaal River, is taken by *L. n. epirhinus* Sund. (Æfv. Vet.-Ak. Förh. 1850, p. 108: Caffr. superiore = lat.  $24^{\circ}$  S. (Wahlberg), probably nr. the upper Limpopo, cf. Stark & Selater, Birds of S. Africa, vol. iii. 1903, p. 115).

In the Journ. für Orn. 1905, p. 440, Erlanger separates the Arabian and north Abyssinian bird under the name *L. n. forskallii* Hempr. & Ehr. (Symb. Phys., Av. 1828, folio 2, footnote 8: Arabia), and certainly the two male specimens before me from southern Arabia have larger bills and are generally larger than specimens of true *L. n. nasutus*.

However, one male before me from Geragi, White Nile, is identical in every way with the Arabian birds: so until further material comes to hand it cannot be definitely settled as to how far this name can hold good.

Since the above was written I have seen the description of *Lophoceros nasutus maraisi* Roberts (Ann. Transv. Mus. vol. iv. 1914, p. 170: nr. Bagamoyo, German East Africa); which is similar in size and colour to *L. n. nasutus*, but smaller, having a wing in the male of 202 mm. There are no specimens in the British Museum from German East Africa, and Dr. Hartert has kindly informed me that the Tring Museum does not possess any either.

As this race has been founded principally on size, I append for comparative purposes the wing-measurements of all the adult males in the British Museum collection:—Gambia, 221; Portuguese Guinea, 221, 218; Gold Coast colony, 229, 222, 219, 214; Nigeria, 222, 197; Welle

River, 223; Bahr el Ghazal, 219, 216; Sudan, 250, 234, 230, 224, 223, 219; Abyssinia, 238, 227, 226, 221, 219; South Arabia, 251, 235; Uganda, 223, 222; British East Africa, 229, 228, 213, 222; Nyasaland, 209, 208, 206; Zambesi, 226, 221, 212, 200; Mashonaland, 234, 222, 214, 211, 208; Damaraland, 225, 222, 219; Bechuanaland, 237; Transvaal, 224, 218, 213, 211 mm.

It will be seen that considerable variation exists in size in birds from the same locality, as, for instance, the two from Nigeria, the six from the Sudan, and the four from the Zambesi; specimens from the first and the last localities overlapping Mr. Austin Roberts' measurement.

143. *Lophoceros erythrorhynchus erythrorhynchus*. Red-billed Hornbill.

*Buceros erythrorhynchus* Temm. Pl. Col. 36<sup>e</sup> Livraison, 1823, sp. 19: Senegal.

a. ♂. 40 miles N.W. of Nakuro, 4200 ft. Dec. 23.

Total length in flesh:  $17\frac{1}{2}$  inches. Wing: 177 mm.

[Irides greyish yellow; bill red, base white; legs and toes black. Common.]

A worn and faded specimen and in moult. This is a small-billed bird, and I am by no means sure that it is really fully adult.

In naming this specimen I have carefully examined the whole series in the National Collection, and can divide them into two well-marked races as follows:—

*LOPHOCEROS ERYTHRORHYNCHUS ERYTHRORHYNCHUS* Temm.  
op. cit.

Having the bar on the outer tail-feathers confined to the outer web, a well-marked white streak over the eye in the majority of specimens, and having on the average more white on the middle secondaries.

*Range.* Senegal to the Niger, east through northern Belgian Congo to Abyssinia, Sudan, Somaliland, Uganda, and British East Africa.

Of this, *Buceros leucopareus* Hempr. & Ehr. (Symb. Phys., Av. 1828, folio aa. footnote 1 : Abyssinian coast-lands), and *Lophoceros mediarius* Sharpe (P. Z. S. 1895, p. 498 : Dabulli, Somaliland) are synonyms.

LOPHOCEROS ERYTHORHYNCHUS CAFFER.

*Buceros erythrorhynchus* var. *caffer* Sund. Œfv. Vet.-Ak. Förh. 1850, p. 108 : Caffraria superior.

Having the bar on the outer tail-feathers complete across both webs, white streak over the eye not too well defined, and having on the average less white on the middle secondaries.

*Range.* Damaraland and Nyasaland to Bechuanaland and the western Transvaal.

Of this, *B. rufirostris* of Sund. op. cit. becomes a synonym; as also apparently does *Lophoceros damarensis* Shelley (Ibis, 1888, p. 66 : Otjimbingue, Damaraland). In the latter case I have carefully examined the two specimens on which Shelley based his name and I consider they are albinistic forms; the characters are not, therefore, those of a distinct race, especially as all other Damaraland birds are identical with those from other parts of southern Africa.

In the K. Sven. Vet.-Akad. Handl. Jan. 1911, pt. 5, p. 73, Lönnberg discusses the variation in size of the bill of these Hornbills, and thinks that habitat and soil have a great bearing on the question; in this he is possibly not far wrong.

144. *Lophoceros flavirostris flavirostris*. Yellow-billed Hornbill.

*Buceros flavirostris* Rüpp. Neue Wirb. 1835, p. 6, pl. ii. : Taranta-Gebirgs, Abyssinia.

a. ♂ ad. Kozibiri River, 2400 ft. Jan. 1.

b. ♂ ad. Turkwel River, 1800 ft. Jan. 15.

Total length in flesh :  $22\frac{1}{2}$  inches. Wing : 210 mm.

The Kozibiri specimen is very worn, and the one from the Turkwel is in good dress.

[Irides yellow; bill yellow, cutting-edge and tip black, base of both mandibles reddish, white spot before eye; bare

skin pale blue and lilac; legs and toes black. Not very plentiful, found frequenting thorn bushes in the desert country.]

In naming these specimens I have had to examine the whole series in the National Collection; and can recognise three races of this Hornbill, which differ in the characters as given by Mr. Ogilvie-Grant in the Cat. Birds Brit. Mus. vol. xvii. 1892, p. 413 :—

*LOPHOCEROS FLAVIROSTRIS FLAVIROSTRIS* Rüpp. op. cit.

*Range.* Abyssinia, Somaliland, Uganda, British E. Africa, and German E. Africa.

In the Journ. für Orn. 1894, p. 96, Prof. Reichenow has described an allied species of this Hornbill under the name *Lophoceros somaliensis* from Meid, Somaliland, and gives the distinguishing character as the red-coloured under mandible. The two specimens from Somaliland before me, taken respectively at Udveris and Goolis, do not differ from true *L. f. flavirostris*; so that at the moment I am quite unable to say whether the Somali form around Meid is a local race, a distinct species, or whether the name will eventually become a synonym.

*LOPHOCEROS FLAVIROSTRIS LEUCOMELAS.*

*Buceros leucomelas* Licht. Verz. Vög. Kafferl. 1842, p. 17 : Kaffernland.

*Range.* Damaraland, Bechuanaland, Matabeleland, Mashonaland, Transvaal to Zululand.

*LOPHOCEROS FLAVIROSTRIS ELEGANS.*

*Toccus elegans* Hartl. P. Z. S. 1865, p. 86, pl. iv. : Ben-guella.

On the average rather smaller than either *L. f. flavirostris* or *L. f. leucomelas*.

*Range.* Angola and Loanda.

145. *Lophoceros deckeni.* Von der Decken's Hornbill.

*Buceros (Rhynchaceros) deckeni* Cab., v. d. Decken, Reisen, vol. iii. pt. 1, 1869, p. 37, pl. vi. : Ost-Afrika, Suaheli-Binnenland, cf. vol. iii. pt. 3, 1879, p. xxii.

a. ♂ ad. S. Guaso Nyiro, 2900 ft. Nov. 22.

Total length in flesh:  $20\frac{1}{2}$  inches. Wing: ♂ 193 mm.

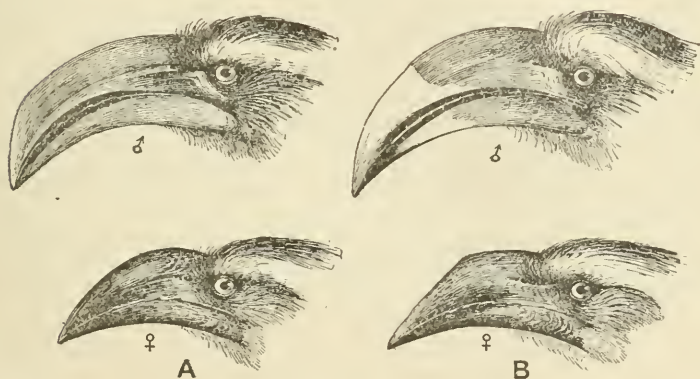
This specimen is rather worn and faded and is assuming new feathering.

[Irides brown; bill red, white, and black; bare skin at base of lower mandible blue-red; legs and toes black.]

Of this species *L. sibbensis* Sharpe (Bull. B. O. C. vol. iv. 1895, p. xxxii: Sibbe) becomes a synonym, as pointed out by Reichenow, Vög. Afr. vol. ii. 1902, p. 266.

Cabanis' plate shows the figure of a female with a black bill, and Sharpe's diagnosis reads, "et rostro toto nigro distinguendus." Besides which the type is now lying before me.

Text-figure 3.



A. Heads of adult male and female of *Lophoceros deckeni*.

B. Heads of adult male and female of *Lophoceros jacksoni*.

#### 146. *Lophoceros jacksoni*. Jackson's Hornbill.

*Lophoceros jacksoni* O.-Grant, Ibis, 1891, p. 127: Turquel, Suk, British E. Africa.

a. ♀ ad. W. of Mt. Leganisho, 5600 ft. Oct. 28.

b. ♂ ad. Weiwei River, 3100 ft. Jan. 7.

c. ♂ ad. Kozibiri River, 1800 ft. Jan. 16.

d. ♂ ad. Nakwai Hills, 3800 ft. Feb. 6.

Total length in flesh: ♂ 20,  $19\frac{1}{2}$ , &  $18\frac{3}{4}$  inches; ♀ 18 inches. Wing: ♂ 181, 177, & 170 mm.; ♀ 173 mm.

All are rather worn and faded.

The three males agree perfectly with the type of *L. jacksoni*, which I consider a sound species.

The female appears to be undescribed, and differs from the female of *L. deckeni* in having white tips to the wing-coverts.

When the bills of the two species are carefully compared, it will be noticed that the bill in the male of *L. deckeni* is more highly arched on the culmen and generally rather more curved than is the bill in the male of *L. jacksoni*.

The five females of *L. deckeni* when compared with the single female of *L. jacksoni* also bear out the same character, that is to say the bill of the former is rather larger and the culmen is obliquely truncated towards the tip, whereas in the latter the culmen curves towards the tip (see text-figure 3).

[♂. Irides brown; bill: upper mandible orange-red, spot near lores white, towards tip whitish, tip black; lower mandible orange-red, whitish towards tip, tip black; cutting-edge of both mandibles black; bare skin red and blue; legs and toes black. ♀. Irides brown; bill black; legs and toes black; bare skin pale blue and red. I may safely say this is the most common bird found in this dry district (Kozibiri River) and it is present everywhere.]

147. *Upupa senegalensis*. Senegal Hoopoe.

*Upupa senegalensis* Sw. Birds W. Africa, vol. ii. 1837, p. 114: Senegal.

a. ♂ ad. Annamuget, Bakoro, 3700 ft. Feb. 1.

b. ♂ ad. Falabek, 2900 ft. Feb. 23.

Total length in flesh:  $11\frac{1}{2}$  &  $10\frac{3}{4}$  inches. Wing: 142 & 135 mm.

The Falabek specimen is worn and faded. The secondaries are not wholly white for their basal two-thirds, but have a black band on the outer web and more or less on the inner webs. It appears to be fully adult. The other is in good clean dress and appears to be immature, as it has the wing only 135 mm. and a total length of  $10\frac{3}{4}$  inches. It has

the basal two-thirds of the secondaries white, the innermost having a black band on the outer web only.

[Irides brown; bill black, flesh-coloured at base; legs and toes greyish-flesh. The bird from Annamuget has the bill brownish horn, black at tip. Very common.]

In naming these specimens I have carefully examined the whole of the African Hoopoes, and have come to the following conclusions:—

There is no doubt that many more specimens will have to be collected before workers will agree as to the number of species that can finally be recognised on the African continent; but I feel sure, as Mr. Bannerman has concluded with regard to the Canary Island birds (*cf.* Ibis, 1914, p. 253), that too many forms have been described on what will probably prove to be mere individual variations.

The mainland birds can at once be divided into two groups: those *with* a white band across the primaries, and those *without* a white band across the primaries; and it is the first group I propose to discuss here, leaving the second group to be discussed under the next species.

Of the group with white-banded primaries we have the following names to deal with as regards the mainland of Africa:—

*Upupa epops epops.*

*Upupa epops* Linn. Syst. Nat. 10th ed. 1758, p. 117: Sweden.

*Upupa epops major.*

*Upupa major* Brehm, Vogelf. 1855, p. 78: Egypt in winter.

*Upupa epops butleri.*

*Upupa butleri* Madarasz, Ann. Mus. Nat. Hung. vol. ix. 1911, p. 339: Chor-Em-Dul, Blue Nile.

*Upupa senegalensis* Sw. Birds W. Africa, vol. ii. 1837, p. 114: Senegal.

*Upupa somalensis* Salvin, Cat. Birds Brit. Mus. xvi. 1892, p. 13, pl. i. : Somali.

*Upupa intermedia* O.-Grant & Reid, Ibis, 1901, p. 674 : Hülül, S. Abyssinia.

These, so far as the specimens before us show, range themselves into :—

#### UPUPA EPOPS EPOPS.

A regular visitant to Egypt, Somaliland, Abyssinia, Egyptian Sudan, and British E. Africa between October and March, though some appear to remain, as is shown by two specimens from Somaliland taken in July and September, two from Abyssinia in August, and one from Gambia taken in May.

#### UPUPA EPOPS MAJOR.

A somewhat larger race which, as shown by Nicoll (*cf.* Ibis, 1909, p. 483 ; Bull. B. O. C. vol. xxiii. 1909, p. 100 ; and Avicult. Mag. vol. ii. 1911, p. 260, fig.), is resident and breeds in Egypt.

I have been unable to recognise *Upupa butleri*, as I can find no adults that bear out Madarasz' description, and the only specimens with wings of 125 mm. are obviously immature.

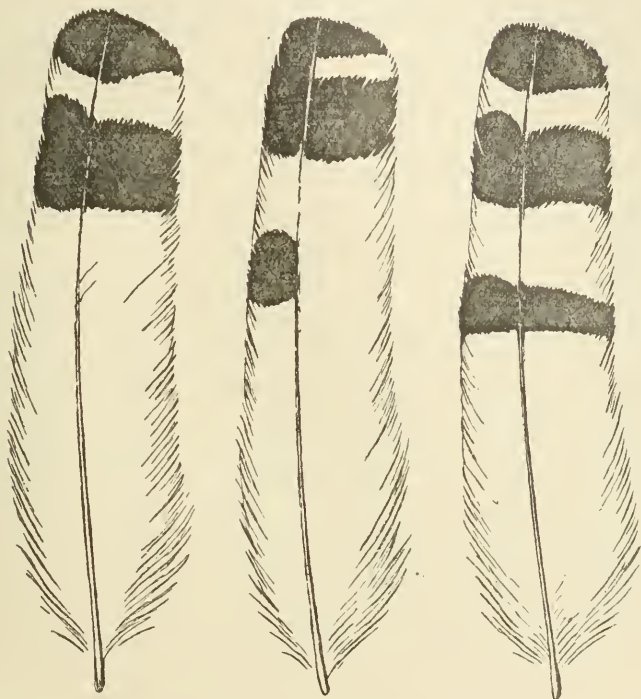
#### UPUPA SENEGALENSIS.

A brighter, more rufous form, differing at a glance from *U. e. epops* and *U. e. major* in the rufous sandy mantle and in having no white between the black and rufous of the crest. In most males the basal two-thirds of the secondaries is pure white, though this is not constant, and in most females the white two-thirds of the secondaries is crossed by two black bands, though this also is not always constant.

Two forms of this rufous Hoopoe under the names *Upupa somalensis* and *Upupa intermedia* have been described, and both in my opinion must become synonyms of *U. senegalensis*, as the character of the secondaries on which both are based is found in specimens of *U. senegalensis* from the same locality, as is clearly shown in the text-figure drawn

from three specimens taken at Yo, Lake Chad (Boyd Alexander coll.).

Text-figure 4.



Fourth secondary of three males of *Upupa senegalensis* taken at Yo, Lake Chad, by Mr. Boyd Alexander.

*Range.* Senegal eastward to Abyssinia, Somaliland, and Uganda.

All the specimens of Hoopoes from Arabia that I have been able to examine belong to *U. e. epops*.

148. *Upupa africana*. South African Hoopoe.

*Upupa africana* Bechst. Kurze Uebers. vol. iv. 1811, p. 172 : Congo and Cape of Good Hope.

*a.* ♂ ad. Kijabe, 6300 ft. Sept. 24.

Total length in flesh :  $11\frac{1}{2}$  inches. Wing 143 mm.

In good dress and but little worn. This is an aberrant specimen, inasmuch as it has on the inner web of the fourth primary of the right wing a trace of white next the shaft, on the inner web of the fifth a large white spot, and on the inner web of the sixth a trace of white on the middle of the web next the shaft; in the left wing the inner webs of the fourth and fifth primaries have large white spots, the sixth has a small white spot, and the seventh the merest trace of white on the middle of the web. Also all the secondaries are barred on the outer webs and some right across, where usually in adult males that part is wholly white.

This seems to point to its affinity with the probably more ancient form of *U. e. epops*, and also goes to prove that only general and average characters can be taken in the dividing up of the Hoopoes, as much allowance must be made for individual variation.

[Irides brown; bill black, dirty flesh at base; legs and toes bluish brown. Tolerably common.]

Of this second group *without* a white band across the primaries we have the following names to deal with:—

*Upupa minor* Shaw, Gen. Zool. vol. ii. 1812, p. 139 : Congo and Cape of Good Hope.

*Upupa cristatella* Vieill. Gal. Ois. vol. i. 1825, p. 306, pl. 184 : Malimbe to Cape of Good Hope. Both of these are founded on La Huppe d'Afrique, Audeb. & Vieill. Ois. dor. Promérops, 1802, pl. ii., as also is *U. africana* Bechst.

*Upupa decorata* Hartl. P. Z. S. 1865, p. 86 : Benguella. The type is in the National Collection and is merely a female of *U. africana*; three specimens from northern Angola in the Ansorge collection agree perfectly with others from south and east Africa.

*Upupa africana maior* Reichw. Orn. Centralb. 1879, p. 72 : Malange, Angola. This must become a synonym of *U. africana*; the name also is preoccupied by *U. major* Brehm.

*Upupa capensis* Swainson, Birds W. Africa, vol. ii. 1837, p. 115. This name is preoccupied by *Upupa capensis* Gmelin, Syst. Nat. 1788, p. 466, which is in its turn a pure synonym of *Fregilupus varius* Bodd.

Thus I do not recognise more than one race of *U. africana* which ranges from the Cape to Angola on the west and to Uganda on the east.

The series in the National Collection shows that this Hoopoe is found in south Africa during the months of Feb., May, June, July, Aug., Oct., Nov., and Dec. (Beira), in Nyasaland in May and Sept., in east Africa in Jan., Feb., May, July, and Nov., and in Damaraland in March and June; so that apparently no regular migration takes place, but only local ones dependent probably on the rains or some other unknown reason, *cf.* Ibis, 1911, p. 695.

In the Orn. Monatsb. 1913, p. 8, Prof. Reichenow has described a new Hoopoe under the name of *Upupa waibeli*: Bamugu, Kamerun, and says that in the crest and underparts it is similar to *U. africana*, but that the primaries are white-banded. I have not seen any specimens from Kamerun, nor from the Congo, which is, strictly speaking, the type locality of *U. africana*, and until specimens come from the Congo, if it occurs there, the correct nomenclature of this group cannot be fixed.

149. *Irrisor erythrorhynchus marwitzi*. Marwitz's Wood-Hoopoe.

*Irrisor erythrorhynchus marwitzi* Reichw. Orn. Monatsb. 1906, p. 171: Makalama, on the Wemberesteppe, German East Africa.

a. ♂ ad. Amala River, 5400 ft. Oct. 17.

b. ♀ ad. Turkwel River, 2000 ft. Jan. 11.

Total length in flesh: ♂ 16½ inches; ♀ 15½ inches.

Wing: ♂ 157 mm.; ♀ 139 mm.; culmen: ♂ 49 mm.

♀ 46 mm.

[Irides brown; bill, legs and toes red. Common, and found in small flocks, and is very noisy.]

In naming the four specimens in this collection belonging to the genus *Irrisor* I have taken the opportunity of laying out the fine series in the National collection, and in the following revision I give the results of a very careful examination of all the names and all the species and subspecies.

Several ornithologists have from time to time revised the group according to the material before them, notably Mr. Ogilvie-Grant in the Bull. B. O. C. vol. xii. 1901, p. 36, in the 'Ibis' for 1902, p. 432 and 1905, p. 209, and Prof. Neumann in the Journ. für Orn. 1905, p. 194; but the principal facts have been overlooked, that is, that the name "*viridis*" is synonymous with "*erythrorhynchos*" and that "*senegalensis*" is based on the immature plumage of a red-billed form.

This group, like many others that show constant variation within certain geographical areas, compels the worker to do one of two things, either to lump most of the forms under one name, which course is obviously incorrect, or to recognise these constant variations and admit several geographical forms.

In working this group I have tried to limit the number of these forms, but they work out easily into three subgroups, *i. e.* :

1. Bill red, wings and tail spotted.
2. Bill red, wings and tail not spotted.
3. Bill black, wings and tail spotted.

Counting the species and subspecies, no less than twelve forms are recognisable, eleven of which are quite well defined.

It is with the young and immature specimens that difficulty is experienced, but even these, when the eye has grasped the differences between the adults, can be picked out and put into their proper place.

The groups and forms I recognise are as follows :—

- (1) Bill red in adults, wings and tail spotted.

*IRRISOR ERYTHRORHYNCHUS ERYTHRORHYNCHUS.*

*Upupa erythrorhynchos* Lath. Ind. Orn. i. 1790, p. 280 : Africa.

Of this, the following are synonyms :—

*Upupa viridis* Licht. (Cat. Hamb. 1793, p. 22 : Terra Cafrorum). Inasmuch as all the evidence points to Latham having described a south African bird, and his plate (Syn. Supp. 1787, p. 124, pl. 110), in my opinion shows a small spotted bird, Lichtenstein's locality also is in the eastern part of Cape Colony, therefore "*erythrorynchos*" should in future be used for the short-tailed small-spotted bird from the Knysna.

It must be remembered that Levaillant's specimens were collected between the years 1781–1785, that is to say 21 years before his *Hist. Ois. de Paradis* was published, in which the plate of his "*Promérops Moqueur*" undoubtedly shows the short-tailed bird, and two years before Latham published his figure of the "*Red-billed Promerops*" in the Syn. Supp. Is it not possible therefore that both Latham and Lichtenstein handled some of Levaillant's specimens, whose travels did not extend eastward beyond about King Williams Town or north beyond about the Compass Berg.

*Promerops purpureus* Shaw & Miller, Cistel. Phys. pl. 52, 1796; founded on Latham's *U. erythrorynchos*.

*Irrisor capensis* Less. *Traité*, 1831, p. 239 (part.) : type locality by tautonymy, founded on Latham's *U. erythrorynchos*.

*Adult.* Spots on wings and tail small; tail short, under 8 inches, central feathers and coverts distinctly washed with purple on their upper side, mantle and breast bright bronze-green, crown washed violet-blue, some specimens washed with green, throat on the average violet-blue, inside of wings washed with green.

*Young.* Mantle, head, and breast black washed with violet and purple bronze.

*Range.* Forests of the Knysna eastward to Elands Post, now Alice, Cape Colony.

*Note.* This race apparently retains the black bill of the young for only a short period.

## IRRISOR ERYTHRORHYNCHUS SENEGALENSIS.

*Falcinellus senegalensis* Vieill. Enc. Méth. vol. ii. 1822, p. 580 : Senegal.

Of this, *Nectarinia melanorhynchus* Licht. (Verz. Doubl. 1823, p. 15 : Senegal), and *Irrisor erythrorhynchus guineensis* Reichw. (Orn. Monatsb. 1902, p. 79 : Portuguese Guinea) become synonyms.

The series in the National Collection shows that "*senegalensis*" is not a black-billed race, but ultimately assumes a red bill.

*Adult.* General appearance much darker than *I. e. marwitzi*; mantle, neck, and breast strongly washed with blue, top of head greenish, throat rather more steely blue than in *I. e. marwitzi*, tail on the average longer, 9 to 11 inches, central tail-feathers steely blue on the upper surface, faintly washed with purple. Spots on wings and tail large, inside of wings washed with green.

*Immature.* Mantle and breast slightly more bronzy than in the adult.

*Young.* Body and head black washed with violet and purple-blue as in *I. e. marwitzi*, but differing from the young of that race in having the tail longer and the central feathers steely blue on their upper surface.

*Range.* Senegal and Gambia, Portuguese Guinea, Gold Coast, Dahomey to Lake Chad.

*Note.* This race retains the black bill of the young for a rather long time and does not assume the red bill with the first moult.

## IRRISOR ERYTHRORHYNCHUS ANGOLENSIS.

*Irrisor erythrorhynchus* var. *angolensis* Reichw. Vög. Afr. ii. 1902, p. 339 : Kakonda, Angola.

*Adult.* Similar to *I. e. marwitzi*, but having the top of the head steel-blue. Spots on wings and tail large. Tail about 9 inches.

*Range.* Angola.

## IRRISOR ERYTHRORHYNCHUS NILOTICUS.

*Irrisor erythrorhynchus niloticus* Neum. Orn. Monatsb. 1903, p. 181 : Goz abu Guma, White Nile.

Of this, *Irrisor erythrorhynchus neglectus* (Neum. Journ. für Orn. 1905, p. 194: Schambala River, Male) becomes a synonym, as from the description it is simply a black-billed young bird of *I. e. niloticus*.

*Adult.* General appearance rather duller and darker than *I. e. marwitzi*, mantle, breast, and head having a faint wash of steel-blue; central tail-feathers steel-blue on their upper surface; inside of wings washed with blue. Spots on wings and tail large. Tail about  $8\frac{1}{2}$  to 9 inches.

*Young.* Body and head black, washed with steel-blue, always some bronzy green on mantle.

*Range.* White Nile and Bahr el Ghazal, the greater part of Abyssinia, except perhaps Ogaden, south to Lakes Stephanie and Rudolf.

*Note.* This race retains the black bill of the young for a rather long time and does not appear to assume the red bill with the first moult.

From the extreme north of Abyssinia, Prof. Neumann has described a race under the name *Irrisor erythrorhynchus abyssinicus* (Orn. Monatsb. 1903, p. 182: Arba Schiko, Anseba River) which appears to be referable to his *I. e. niloticus*, but the constant character of the particoloured bill compels me to recognise it as a distinct race, at any rate until full red-billed birds are brought back from the Anseba River Valley or nearer the Red Sea. The range of this race is at present the Tigre and Bogos districts of northern Abyssinia. Tail  $8\frac{1}{2}$  to 9 inches.

#### IRRISOR ERYTHORHYNCHUS MARWITZI.

*Irrisor erythrorhynchus marwitzi* Reichw. Orn. Monatsb. 1906, p. 171: Makalama in the Wemberesteppe, German E. Africa.

Of this, *Irrisor erythrorhynchus brevirostris* Gunn. & Rob. (Ann. Transv. Mus. vol. iii. 1911, p. 113: Villa Pereira, Boror, Portuguese E. Africa, see also Journ. S.A. Orn. Union. vol. viii., 1912, p. 26) becomes a synonym, as birds from Portuguese E. Africa agree perfectly with specimens from the north and south, and the bill is *not* shorter.

*Adult.* Differs from *I. e. erythrorhynchus* in having the spots on the wings and tail large and the tail longer,  $8\frac{1}{2}$  to 10 inches, central feathers and coverts strongly washed with purple on their upper surface, rest of plumage as *I. e. erythrorhynchus*.

*Young.* Plumage as young of *I. e. erythrorhynchus*, but wing- and tail-spots large and tail longer.

*Range.* Natal, Swaziland, Transvaal, Portuguese East Africa, Matabeleland, Mashonaland, Nyasaland, northern Rhodesia, Belgian Congo (Dikulwe Valley), German East Africa, British East Africa (Mombasa to Rift Valley), Uganda up to the Turkwel River, island of Zanzibar.

*Note.* This race retains the black bill of the young for only a short period, apparently assuming the red bill with the first moult.

The Kakelaar, which occurs in Pondoland (see Shortridge, 'Ibis,' 1904, p. 191, and Davies, Journ. S. A. Orn. Union, vol. iii. 1907, p. 190), recorded in both cases under the name of "*viridis*," I am unable to place, as I have no specimens available from that locality, but I should not be surprised to find that it turns out to be *I. e. marwitzi*.

*IRRISOR ERYTHORRHYNCHUS RUWENZORÆ*, subsp. nov.

The one specimen before me from Ruwenzori differs very markedly from any *Irrisor* found in East Africa, and certainly cannot be placed under either *I. e. marwitzi* or *I. e. niloticus*. In the Trans. Zool. Soc. vol. xix. 1910, p. 432, Mr. Ogilvie-Grant has recorded this specimen under the name of *I. viridis* Licht., but as I have shown that "*viridis*" is a synonym of "*erythrorhynchus*" and that *erythrorhynchus* is confined to the Cape Colony, the Ruwenzori bird must be given a new name.

Similar to *I. e. erythrorhynchus* in the size of the spots on the wings and tail, but having only the *two* outer pairs of tail-feathers spotted; length and colour of tail as *I. e. marwitzi*; throat and top of head washed with green; mantle, breast, and underside of wings as in *I. e. erythrorhynchus*. Iris dark brown, bill and feet red.

Wing 124 mm.; culmen 47; tarsus 19; tail about 208 mm., *i. e.*  $8\frac{1}{4}$  inches.

Type in British Museum. ♀ ad. [No. 267]. South-east slopes of Ruwenzori, 3400 ft., collected May 2nd, 1906, by R. E. Dent.

IRRISOR DAMARENSIS DAMARENSIS.

*Irrisor damarensis* O.-Grant, Bull. B. O. C. vol. xii. 1901, p. 37 : Damaraland.

*Adult.* Mantle and breast black with a purplish bronze wash, top of head spangled dark coppery bronze, throat dark green. Wing- and tail-spots very large.

*Range.* Damaraland.

IRRISOR DAMARENSIS GRANTI.

*Irrisor damarensis granti* Neum. Orn. Monatsb. 1903, p. 182 : Ngomeni, Ukamba, British E. Africa.

*Adult.* Differs from *I. d. damarensis* in having the mantle and breast strongly washed with deep violet, top of the head washed deep violet and spangled brighter reddish copper and bronze, throat brighter green.

*Range.* British E. Africa, Amala River to Lake Stephanie.

(2) Bill red, wings and tail not spotted.

IRRISOR BOLLEI BOLLEI.

*Irrisor bollei* Hartl. Journ. für Orn. 1858, p. 445 : Ashantee.

*Adult.* Head and throat deep buff. In the young bird there is an admixture of black and buff on the head and throat.

*Range.* Gold Coast Colony : Ashanti, Fantee, Mampon, and Wassu district.

IRRISOR BOLLEI JACKSONI.

*Irrisor jacksoni* Sharpe, Ann. Mag. Nat. Hist. (6) vol. vi. 1890, p. 503 : Kikuyu Country, British E. Africa.

*Adult.* Similar to *I. b. bollei*, but having the head and throat whiter, less deep buff.

In a young bird the head and throat are almost pure white with an admixture of black.

*Range.* British East Africa and Uganda: Kikuyu and Mt. Kenia to Mt. Elgon and Semliki Valley.

A specimen in the Boyd Alexander collection, taken at Molegbwe between Banzville and the Setema Rapids on the Ubanghi River, French Congo, on the 11th of December, 1905, agrees perfectly both with specimens of *I. b. bollei* and *I. b. jacksoni*, so that I am unable to decide to which it belongs, though it should perhaps be referred to *I. b. bollei*.

(3) Bill black, wings and tail spotted.

*IRRISOR SOMALIENSIS.*

*Irrisor somaliensis* O.-Grant, Bull. B. O. C. vol. xii. 1901, p. 38: Fer Libah, Somaliland.

*Adult.* Bill always black, sometimes reddish at base of lower mandible, rather more curved and narrower than *Irrisor erythrorhynchus*. Above and below, including wings and upper side of tail, dark steel-blue washed with purplish, top of head dark steel-blue spangled with copper and greenish, throat dark bronze-green, front of neck coppery bronze and steel-blue; wing- and tail-spots large: tail longish, about 9 inches; inside of wings bright steel-blue.

*Young.* Rather duller than adults. Never any trace of metallic green on mantle or scapulars as in the young birds of *I. e. niloticus*.

*Range.* British Somaliland, south through Jubaland to the Tana River.

This is one more instance showing that Somaliland birds extend into Jubaland, and that the dividing line appears to be somewhere around the Tana River and Lorian Swamp.

The three other names to deal with are:—*Irrisor blythii* Heugl. (J. f. O. 1867, p. 202: Somaliland), which is a nomen nudum and may be a misspelling for "*bollei*," though the locality given does not support this; *Irrisor theophilei* Heugl. (Orn. N.O.-Afr. vol. i. 1869, p. 220), which I do not think is an *Irrisor* at all; and *Irrisor sharpei* of Emin Pasha's Journal (cf. P. Z. S. 1894, p. 597), also a nomen nudum and probably a misspelling for "*jacksoni*."

The tail-lengths given above have only been roughly taken from the base, just to give a comparative idea.

It is worthy of note that no *Irrisor* has yet been found in Cameroon, and Mr. G. L. Bates informed Mr. Iredale that during the many years he had spent there he had neither seen nor heard one.

150. *Irrisor bollei jacksoni*. Jackson's Wood-Hoopoe.

*Irrisor jacksoni* Sharpe, Ann. Mag. Nat. Hist. (6) vol. vi. 1890, p. 503 : Kikuyu, British E. Africa.

a. ♂ ad. Mau, 9000 ft. Dec. 2.

In worn dress.

Total length in flesh :  $13\frac{1}{2}$  inches. Wing : 133 mm.

[Irides brown ; bill red, blackish at tip ; legs and toes red. Only seen once, a small flock being observed when crossing the Mau escarpment.]

151. *Irrisor damarensis granti*. Grant's Wood-Hoopoe.

*Irrisor damarensis granti* Neum. Orn. Monatsb. 1903, p. 182 : Ngomeni, Ukamba, British E. Africa.

a. ♀ ad. Amala River, 5400 ft. Oct. 17.

In good dress ; end of tail somewhat worn.

Total length in flesh :  $14\frac{1}{2}$  inches. Wing : 139 mm.

[Irides brown ; bill red, tip blackish ; legs and toes red.]

152. *Rhinopomastus cyanomelas schalowi*. Schalow's Scimitar-billed Wood-Hoopoe.

*Rhinopomastus schalowi* Neum. Journ. für Orn. 1900, p. 221 : Usandawe, German E. Africa.

a. ♀ ad. Loita, 6300 ft. Oct. 5.

b. ♂ ad. Lemek Valley, 6500 ft. Oct. 7.

Total length in flesh : ♂  $12\frac{3}{4}$ , ♀ 11 inches. Wing : ♂ 119, ♀ 104 mm. Culmen : ♂ 45·5, ♀ 33 mm.

Both are a little worn, and the male is moulting.

The female differs from the male, not only in the smaller size, but in having the forehead, sides of the face, throat and breast brownish, and the belly and under tail-coverts blackish.

[Irides dark brown ; bill, legs and toes black. Stomach contained insects.]

In naming these birds I have had to examine all the series in the National Collection, and have come to the conclusion that only two races can be recognised, as follows :—

*RHINOPOMASTUS CYANOMELAS CYANOMELAS.*

*Falcinellus cyanomelas* Vieill. Nouv. Diet. d'Hist. Nat. xxviii. 1819, p. 165 : Namaqualand.

A short-tailed race, being without or with only incomplete spots on the tail.

*Range.* River Quanza, Angola, Benguella, Damaraland to Lake Ngami, western Matabeleland (Bamangwato, Tati, Kanye) across to the high country of N.E. Transvaal (Woodbush, Zoutpansberg), western Transvaal, and Kroonstad, O.R.C., to Natal and Griqualand East.

*RHINOPOMASTUS CYANOMELAS SCHALOWI* Neum.

A long-tailed race, having the spots on the tail always well developed.

*Range.* Low country of N.E. Transvaal (Umzila's Country, Lehtaba) to east Matabeleland (Makalaka), Mashonaland, Portuguese East Africa, Zambesi River, N.E. Rhodesia, Nyasaland, German East Africa, Belgian Congo (Dikulwe Valley), Uganda, British East Africa, and Manda Island. The most northern limit appears to be along a line from Manda Island and Lamu through to Mt. Elgon to Ruwenzori.

Since writing the above I have seen Roberts' description in the Ann. Transv. Mus. vol. iv. 1914, p. 171, of *Rhinopomastus cyanomelas intermedius*, the type locality being given as Koodoes River, Zoutpansberg District, N.E. Transvaal. The characters on which it is founded are the length of the tail, *i. e.* males 165–155, females 146–136 mm., and "less white on the tail-feathers."

Another careful examination of the large series in the British Museum collection shows that the white on the tail, though constantly greater in *R. c. schalowi* when compared with specimens of *R. c. cyanomelas*, varies quite considerably individually and, moreover, in series from the same district, as is exemplified in British East African and Uganda specimens.

The measurement of the tails gave the following results :

Manda Island: ♂ 149 mm. Uganda: ♂ 165-147, ♀ 171-151 mm. British E. Africa: ♂ 176-163, ♀ 156-137 mm. German E. Africa: ♂ 166, ♀ 151 mm. N.E. Rhodesia: ♂ 175-174 mm. Nyasaland: ♂ 185-172, ♀ 163 mm. Portuguese E. Africa: ♂ 183-168, ♀ 158-146 mm. Lower Zambesi: ♂ 175-168, ♀ 167 mm. Eastern Matabeleland: ♂ 167-146, ♀ 164-161 mm. Mashonaland: ♂ 187-162, ♀ 167 mm. Eastern Transvaal (low country): ♀ 144 mm.

Neumann, Journ. für Orn. op. cit., gives the measurements of the tail of four specimens from German East Africa, males 205 and 180, females 175 and 168 mm.

The above list shows not only that great individual latitude must be allowed, but that Roberts's measurements are very closely matched in birds from German East Africa and are actually equalled by those from Uganda, thus compelling me to place his name as a synonym.

For comparative purposes, I append a list of tail-measurements of *R. c. cyanomelas* taken from the Museum series:—Eastern Transvaal (high country): ♂ 145 mm. Western Transvaal: ♂ 129 mm. Orange River Colony: ♂ 130-127. Natal: ♂ 138, ♀ 136 mm. Griqualand East: ♀ 119 mm. Cape: ♂ 136 mm. Bechuanaland: ♀ 117-113 mm. Western Matabeleland: ♂ 140-133 mm. Damaraland: ♂ 140-121, ♀ 123-120 mm. Benguela: ♂ 139 mm.

153. *Rhinopomastus cabanisi*. Cabanis' Scimitar-billed Wood-Hoopoe.

*Irrisor cabanisi* Filippi, Rev. et Mag. Zool. 1853, p. 289: "entre le quatrième et le troisième degré nord = about 120 miles S. of Khartoum.

a. ♂ imm. Amala River, 5500 ft. Oct. 15.

b. ♀ ad. 40 miles N.W. of Baringo, 3400 ft. Jan. 1.

c. ♂ ad. Mt. Maroto, Maroto Stream, 3700 ft. Jan. 26.

Total length in flesh: ♂ ad.  $10\frac{3}{4}$ , imm.  $9\frac{3}{4}$ , ♀  $9\frac{1}{4}$  inches. Wing: ♂ ad. 108, imm. 107, ♀ 96 mm. Culmen: ♂ ad. 38, imm. 34, ♀ 29.5 mm.

All three are in good dress, the female differing from the male in being smaller and having the underparts dull sooty.

The immature male is larger than the female, but has a rather shorter bill than the adult male and has the underparts sooty.

There are no specimens in the National Collection from anywhere near the type locality, so I am quite unable to say whether these specimens would agree with those from near Khartoum.

[*Adult*. Irides brown; bill orange, tip black; legs and toes blackish in male, black in female.

*Immature*. Irides dark brown; bill yellow, tip black; legs and toes black.

Several seen in the Rift Valley, but appears to be scarce near Mt. Maroto.]

154. *Dicrocercus hirundineus henglini*. Henglin's Swallow-tailed Bee-eater.

*Dicrocercus hirundineus henglini* Neum. Bull. B. O. C. vol. xvi. 1906, p. 113 : Bongo, Bahr el Ghazal.

a. ♂ ad. Nakwai Hills, 3800 ft. Feb. 6.

Total length in flesh :  $9\frac{1}{4}$  inches. Wing : 92 mm.

In bright plumage and but slightly worn.

[Irides red; bill black; legs and toes greyish brown. The Nakwai Hills was the only locality where this species was observed, two being seen, but both were very wild.]

In naming this specimen I have examined the whole series in the National collection, and can only recognise three races of this Bee-eater, as follows :—

#### DICROCERCUS HIRUNDINEUS HIRUNDINEUS.

*Merops hirundineus* Licht. Cat. Rer. Rar. 1793, p. 21 : No locality. Cf. *Merops hirundinaceus* Vieill. Nonv. Dict. d'Hist. Nat. vol. xiv. 1817, p. 21 : Petits Namaquois ; also Levaill. Hist. des Ois. Paradis, 1806, p. 36 : "sur les bords de la Rivière d'Orange."

I agree with Dr. Forbes and Mr. Robinson, Bull. Liverp. Mus. vol. ii. 1899, p. 30, and Prof. Neumann, Bull. B. O. C. vol. xvi. 1906, p. 113, that *Merops furcatus* Stanley (Salt's Abyss. vol. iv. 1814, p. lvii : Adowa, Abyssinia) must become a synonym. Through the kindness of Dr. Clubb, of the

Liverpool Museum, I have also examined the type, and it is undoubtedly a bird of the southern form and, as stated by Prof. Neumann, must have been procured at Mozambique, where Salt remained some time, see pp. 20-83 of 'Voyage to Abyssinia,' 1814.

No blue on forehead; rump, belly, and under tail-coverts aquamarine; band across lower throat medium cobalt-blue; throat pale cadmium-yellow.

*Range.* Angola, Damaraland, Namaqualand, Lake Ngami and Bechuanaland, Rhodesia, Transvaal, Natal, Portuguese East Africa, Nyasaland, Belgian Congo (Lufupa River) to Dar-es-Salaam, German East Africa.

*DICROCERCUS HIRUNDINEUS CHRYSOLAIMUS.*

*Merops chrysolaimus* Jard. & Selby, Ill. Orn. vol. ii. 1830, pl. 99: Sierra Leone.

In the Bull. Liverp. Mus. vol. ii. 1899, p. 30, Dr. Forbes and Mr. Robinson state that Jardine & Selby's name is ambiguous and "the figure, moreover, is not that of the West African species."

In this I think they are wrong, and I agree with Neumann, Bull. B. O. C. xvi. 1906, p. 113, that the plate "undoubtedly" represents a bird with a blue forehead; moreover, Jardine & Selby's type is in the British Museum, was collected at Sierra Leone by a Dr. Ferguson, and bears on the back of the label in Jardine's handwriting "Authority for Pl. 99 in Ornith. Illust."

Blue band across forehead; rump, belly, and under tail-coverts more ultramarine; band across lower throat cobalt-blue; throat medium cadmium-yellow.

The young bird has no blue on the forehead, but when compared with young birds of *D. h. hirundineus* the rump is found to be of a much deeper blue.

*Range.* Senegal, Gambia, Sierra Leone, Gold Coast, and Nigeria to Lake Chad.

*DICROCERCUS HIRUNDINEUS HEUGLINI.*

Of this, I consider that *D. h. omoensis* Nenm. (Bull. B. O. C. vol. xvi. 1906, p. 114: Koscha, Omo River) must become a synonym.

Similar to *D. h. chrysolaimus*, but having the blue of the band across the lower throat, rump, and under tail-coverts much deeper.

*Range.* Abyssinia and the Sudan to Uganda.

155. *Melittophagus pusillus cyanostictus*. Eastern Little Bee-eater.

*Melittophagus cyanostictus* Cab., von der Decken, Reisen in Ost-Afr., Vögel, vol. iii. 1869, p. 34: Mombasa.

*a, b.* ♂ ad. Mt. Suswa. Sept. 25 & 27.

*c.* ♂ ad. Amala River, 5400 ft. Oct. 18.

*d, e.* ♂ ♀ ad. 12 miles E. of Amala River, 5700 ft. Oct. 26.

*f, g.* ♂ ♀ ad. Kozibiri River, 2400 ft. Jan. 21.

Total length in flesh: ♂ 7-6½ inches; ♀ 7-6½ inches.  
Wing: ♂ 81-83 mm.; ♀ 80-78 mm.

These seven specimens are in quite good dress and are only very slightly worn.

The birds from Mt. Suswa and the Amala River have blue on the forehead, though three have but the smallest indication of it and show no approach to the broad blue band on the forehead of more northern specimens; therefore it would appear that these specimens are at about the southern limit of the range of this race, and are beginning to merge into the wholly green forehead of *M. p. meridionalis*.

[Irides red; bill black; legs and toes blackish flesh, brownish flesh, dirty flesh or dirty grey. Tolerably common everywhere.]

A careful examination of the large series in the British Museum gives the following results as regards the three races of this Bee-eater:—

*MELITTOPHAGUS PUSILLUS PUSILLUS.*

*Merops pusillus* P. L. S. Müll. Linn. Nat. Syst. Suppl. 1776, p. 95: Senegal, ex Buffon.

General appearance rather more golden than *M. p. meridionalis*; neck-patch black, with a very narrow line of blue between the black and the yellow throat; supercilium absent, or only the merest indication; forehead uniform

with top of head. Young birds distinctly paler above and below than the young of *M. p. meridionalis*.

*Range.* Senegal to Nigeria and Lake Chad district.

MELITTOPHAGUS PUSILLUS CYANOSTICTUS.

*Melittophagus cyanostictus* Cab. op. cit.

In the Bull. B. O. C. vol. x. 1899, p. 26. Hartert asserts that Cabanis' "*cyanostictus*" is described from Natal, and renames the East African bird under the name of *Melittophagus sharpei*; but in this he is undoubtedly mistaken, as Cabanis distinctly gives Mombasa as his type locality, as has since been pointed out by Reichenow in the Orn. Monatsb. 1900, p. 86.

Size as in *M. p. pusillus*; neck-patch as follows: next to yellow throat a very narrow line of emerald-green, below this a line of blue and rest of patch black, washed with blue in most specimens; superciliary stripe broad and distinct; forehead blue, uniform with supercilium. The one young bird before me is darker above and below than the young of *M. p. meridionalis*.

*Range.* Southern Abyssinia, Somaliland, British East Africa, to Teita, German East Africa.

MELITTOPHAGUS PUSILLUS MERIDIONALIS.

*Melittophagus meridionalis* Sharpe, Cat. Birds Brit. Mus. vol. xvii. 1892, p. 45: Natal.

As I cannot see any difference between Nubian specimens and those from south Africa, the *M. p. ocularis* Reichw. (Orn. Monatsb. 1900, p. 86: Nubia, N.E. Africa), must become a synonym.

Size as in *M. p. pusillus*. General colour less golden; neck-patch black, with a very narrow line of blue between the black and the yellow throat; superciliary stripe distinct; forehead uniform with top of head. The young birds are distinctly darker above and below than the young birds of *M. p. pusillus*, but not so dark as the single young bird before me of *M. p. cyanostictus*.

*Range.* Natal and south Africa generally, north to the Congo River mouth on the west; on the east to Dar-es-Salaam, German East Africa, and across to Victoria Nyanza,

Uganda and Ruwenzori up through the Albert Nyanza and Nile Valley to Kordofan, eastern and northern Abyssinia to Nubia.

*Merops angolensis* Gmelin (Syst. Nat. vol. i. 1788, p. 463 : Angola) is at present an indeterminate name, and the description, especially of the cuneiform tail, in my opinion does not apply to a Bee-eater at all.

156. *Melittophagus lafresnayii oreobates*. Cinnamon-chested Bee-eater.

*Melittophagus oreobates* Sharpe, Ibis, 1892, p. 320 : Savé, Mt. Elgon, B. E. Africa.

*a, b.* ♂ ♀ ad. Amala River, 5300 ft. Oct. 19 & 24.

Total length in flesh : ♂  $8\frac{1}{4}$  inches ; ♀  $8\frac{1}{2}$  inches. Wing : ♂ 100 mm. ; ♀ 101 mm.

Both are in good dress and but slightly worn. The male differs from the female in having the blue on the neck blacker and in having bluish edges to the green outer web of the secondaries, these being wholly green in the female.

The female has a faint indication of blue next the nostrils, but not sufficient to be confounded with *M. l. lafresnayii*.

[Irides red ; bill black ; legs and toes dirty flesh-colour. Tolerably common at the Amala River.]

I am of opinion that this race should be considered a subspecies of *M. lafresnayii*, the ranges of both being as follows :—

*MELITTOPHAGUS LAFRESNAYII LAFRESNAYII.*

*Merops lafresnayii* Guér. Rev. Zool. 1843, p. 322 : Abyssinia.

The forehead and superciliaries broadly marked with blue ; blue on neck dark ultramarine ; chest more saffron.

*Range.* Abyssinia only.

*MELITTOPHAGUS LAFRESNAYII OREOBATES.*

Forehead green, uniform with top of head ; faintest indications of blue supercilium ; blue on neck blackish indigo ; chest more cinnamon. Size as in *M. l. lafresnayii*.

*Range.* British East Africa (Mt. Elgon to German border) and Uganda, including Ruwenzori.



MELITTOPHAGUS VARIEGATUS BANGWEOLENSIS.

MELITTOPHAGUS VARIEGATUS VARIEGATUS.

*Merops variegatus* Vieill. Nouv. Dict. d'Hist. Nat. vol. xiv. 1817, p. 25 : Malimbe, Loango.

This species, which comes near the two former in general characters, is much smaller than either, has the forehead green, the neck-patch dark ultramarine, and ranges into the country of *M. l. oesbates* as follows :—

*Range.* Gambia, Gaboon, French Congo and Congo River, Welle River, across to Uganda (Mwisi River, Lake Albert, Toro, Mabira, and Entebbe) and German East Africa (Bukoba, east of Victoria Nyanza).

It is worthy of note that all the east African specimens have a distinct superciliary stripe, and that most western specimens have no superciliary stripe or only an incomplete one. But although I have examined a good many eastern specimens, I have not been able to handle a sufficient number of well-collected specimens from the west.

I have to thank Mr. Rothschild and Dr. Hartert for kindly loaning me their specimens from Tring.

MELITTOPHAGUS VARIEGATUS BANGWEOLOENSIS. (Plate IV.)

*Melittophagus variegatus bangweoloensis* Claude Grant, Bull. B. O. C. vol. xxxv. 1915, p. 55 : Luena Dist., N.E. Rhodesia.

*Adult male.* Size as in *M. v. variegatus*, but differs from that race in having the blue band across the lower neck much narrower and of a somewhat deeper and darker tint ; below this band there is only a narrow margin of saffron, and the rest of the underparts, including the throat, are rather paler than in *M. v. variegatus*.

*Type* : ♀ ad. in British Museum. Luena District, North-Eastern Rhodesia (within 10 miles of east shores of Lake Bangweolo), 17. vi. 08. S. A. Neave coll. Culmen 25, wing 85, tarsus 9, tail 63 mm.

*Range.* Lake Bangweolo District, N.E. Rhodesia.

Since the above has been written Mr. Mearns has given a name to the east African form of *M. variegatus*, under the name of *Melittophagus variegatus loringi*, Proc. U.S. Nat. Mus. vol. xlviii. 1915, p. 393, and gives the diagnostic

features as larger and much paler and purer yellow on the under-parts, wing given as 89 mm. This, however, does not appear to be borne out by the series from east Africa examined by me, but, as other slight differences exist between western and eastern birds, as stated above, the eastern form should perhaps bear Mearns' name.

157. *Melittophagus bullocki frenatus*. Hartlaub's Red-throated Bee-eater.

*Merops frenatus* Hartl. Journ. für Orn. 1854, p. 257 : Seenaar.

*a.* ♂ ad. Kittigom, Chua District, 2850 ft. Feb. 21.

Total length in flesh :  $8\frac{1}{2}$  inches. Wing : 100 mm.

In slightly worn dress.

This race is very closely allied to *M. b. bullocki*, but has a light blue line between the black under the eye and the red throat, this being absent in most specimens of *M. b. bullocki* or replaced by a few *green* feathers.

[Irides brown ; bill, legs and toes black. Several were seen.]

The range of the two races appears to be as follows :—

MELITTOPHAGUS BULLOCKI BULLOCKI.

*Merops bullocki* Vieill. Nouv. Diet. d'Hist. Nat. vol. xiv. 1817, p. 13 : Senegal.

Senegal, Gold Coast Colony and the Niger to Lake Chad and the River Shari (*Boyd Alexander*).

MELITTOPHAGUS BULLOCKI FRENATUS.

N.E. Belgian Congo, Bahr el Ghazal, Uganda, Sudan, and Abyssinia.

158. *Melittophagus bullockoides*. White-fronted Bee-eater.

*Merops bullockoides* A. Smith, S. A. Q. Journ. vol. ii. 1834, p. 320 : South Africa.

*a, b.* ♂ ad. Mau, 6900 ft. Sept. 30.

*c.* ♂ ad. Southern Guaso Nyiro, 6100 ft. Oct. 2.

Total length in flesh :  $9\frac{3}{4}$  inches. Wing : 119, 117, & 116 mm.

All three are in bright plumage and but very slightly worn.

[Irides dark brown; bill black; legs and toes bluish black, slate-grey or grey, claws black. Common and seen in small flocks.]

*Speconax albifrons* (Cab. & Heine, Mus. Hein. vol. ii. 1860, p. 133) is a nomen nudum founded on *M. bullockoides* Smith; and *Merops smithii* Schleg. (Mus. Pays-Bas, vol. iii. *Merops*, 1863, p. 9: Cafrérie) is a substitute name for *M. bullockoides* of Smith, and in the description is compared with *M. bullocki*.

*M. bullockoides* ranges without variation from south Africa to north Angola on the west and British East Africa on the east.

159. *Merops apiaster*. European Bee-eater.

*Merops apiaster* Linn. Syst. Nat. 10th ed. 1758, p. 117 : Southern Europe.

a. ♀ imm. Lemek Valley, 6000 ft. Oct. 8.

b. ♀? ad. 12 miles E. of Amala River, 5600 ft. Oct. 25.

Total length in flesh : 10 &  $9\frac{3}{4}$  inches. Wing: ad. 139 mm.; imm. 145 mm.

The adult is in very worn faded plumage, new yellow feathers appearing on the throat. The immature is not worn and has short central tail-feathers.

[Irides red; bill black; legs and toes blackish flesh. In the specimen from the Lemek Valley the irides are given as brown, and the legs and toes as dirty grey.]

160. *Merops nubicus nubicus*. Nubian Carmine Bee-eater.

*Merops nubicus* Gm. Syst. Nat. vol. i. pt. i. 1788, p. 464 : Nubia.

a. ♀ ad. Gondokoro. March 7.

Total length in flesh :  $13\frac{1}{2}$  inches. Wing : 149 mm.

In bright dress and but slightly worn.

[Irides red; bill black; legs and toes dull grey. Common from Gondokoro northwards.]

*Merops nubicus* Gmelin was founded on the "Le Guépier Rouge à tête bleue" of Buffon, Hist. Nat. vol. iv. 1779, p. 506, and this in turn refers to the plate no. 649 in the Pl. Enl. 1783 entitled "Guépier de Nubie," which must have been drawn in 1779, though apparently not published till four years later.

This plate shows a bird without elongated central tail-feathers, no black through the eye or on the ear-coverts, and the head coloured very blue; otherwise it agrees with *M. nubicus*, and as no other Bee-eater can be easily confounded with this species this plate can be safely accepted for it.

In the National Collection there is only one young example from the Transvaal of *Merops nubicoides* Des Murs et Puch. (Rev. Zool. 1846, p. 243: Port Natal), that has a blue throat, which, besides showing pink new feathers coming in by a moult, has this part of a much paler blue than in the young of *M. nubicus*.

Judging by the five young specimens of *M. nubicoides* before me, the normal colour of the throat is pinkish brown in the first dress, but there appears to be a second immature dress before the adult is reached, though much more material is required before a definite conclusion can be come to.

Curiously enough, the blue-throated young bird appears to be assuming the full adult dress direct and is not assuming an intermediate immature stage, as the pinkish brown-throated young appear to do.

The range of the two birds seems to be as follows:— .

#### MEROPS NUBICUS NUBICUS.

Nubia, Abyssinia, Somaliland, Sudan, Bahr el Ghazal, Uganda, British East Africa, and Manda Island south to Pangani River, German East Africa, west to Nigeria, Gold Coast, Portuguese Guinea, Gambia, and Senegal.

#### MEROPS NUBICUS NUBICOIDES.

Natal, Transvaal, Matabeleland, Portuguese East Africa, Zambesi, north to Nyasaland and west to Damaraland.

161. *Scotornis climacurus*. Long-tailed Nightjar.

*Caprimulgus climacurus* Vicill. Gal. Ois. vol. i. 1825 (1823?), p. 195, pl. 122: Senegal.

a. ♂. Turkwel River, 2000 ft. Jan. 11.

b, c. ♂ ♀. Turkwel River, 1900 ft. Jan. 14.

d. ♂. Kozibiri River, 1800 ft. Jan. 16.

e, f. ♂ ♀. Kittigom, 2850 ft. Feb. 20.

Total length in flesh: ♂  $12\frac{3}{4}$ ,  $10\frac{1}{2}$ ,  $10\frac{1}{4}$  &  $9\frac{1}{4}$  inches; ♀ 10 &  $9\frac{1}{4}$  inches. Wing: ♂ 153–144 mm.; ♀ 149 & 141 mm.

These six specimens are very evenly matched, and are all in the fulvous fawn phase, one or two inclining to brownish chestnut. All of them appear to be adult, though only one of the four males has the central tail-feathers elongated.

[Irides brown; bill brownish-flesh, tip black; legs and toes dark or brownish-flesh or greyish brown. Found in numbers under the thorn-bushes.]

An examination of the large series of this species in the British Museum collection shows that three phases of plumage appear to occur in this Nightjar, *i. e.*, a fulvous fawn, a brownish chestnut, and a grey, having almost every variation in between. When laid out in localities it is noticeable that the grey ones nearly all occur in the east on the Sobat, Blue and White Niles, though fulvous-fawn ones also occur there; and that the majority of western specimens are fulvous fawn or brownish chestnut, with only an occasional one inclining to grey. Again, from some localities a series shows very even coloration, whilst from others great variation individually exists, for instance, from the Sobat River all are boldly marked and incline to grey, whereas seven from Sierra Leone show a variation from a greyish specimen through brownish chestnut and fulvous fawn to one of a very light greyish sandy.

It may be that large series from every locality would show some method in the coloration of this apparently variable bird, a probability that the grey series from the Sobat River seems to point to.

162. *Macrodipteryx longipennis*. Long-plumed Nightjar.  
*Caprimulgus longipennis* Shaw, Nat. Misc. vol. viii. 1796,  
 pl. 265 : Sierra Leone.

a-c. ♂ ♀ ad. Kamchurn, 3250 ft. Feb. 10 & 11.

Total length in flesh : ♂  $8\frac{1}{2}$  &  $8\frac{1}{4}$  inches ; ♀ 9 inches.  
 Wing : ♂ 174 & 172 mm. ; ♀ 162 mm.

All three specimens are in quite good dress. One of the males lacks the long wing-plumes, but is apparently adult. The female, besides being smaller, is slightly paler than the two males.

[Irides brown, eyelids yellow or light brown ; bill black, yellowish at base ; legs and toes brown or brownish-flesh. The male with plumes was shot sitting on the ground, and appeared to be squatting between the elongated feathers which project on either side. In the evenings several were seen flying together, and their appearance on the wing is most peculiar.]

As regards the name *Caprimulgus macrodipterus* Afzelius (cf. Lath. Gen. Syn. Suppl. ii. 1802, p. 264), used by Hartert in the 'Catalogue of Birds' (vol. xvi. 1892, p. 594) and quoted under Afzel. Deser. Sierra Leone, pl. 1794, I have examined carefully this work at the Linnean Society. The true title is 'Account of the Natural Productions of Sierra Leone,' by Adam Afzelius ; I find that it is in a 'Report of the Directors of the Sierra Leone Company,' dated the 27th of March, 1794, and is mainly devoted to the slave trade. In an appendix at the end is the only mention of wild birds, as follows :—"Birds. Of these the Directors have as yet received no perfect account. It is mentioned that there is a Crane of an extraordinary appearance, which becomes very tame ; it is reckoned very good food."

The only plate in the work is a map of Sierra Leone, which bears at the bottom the date 28 Nov. 1794.

At the end of the work there is a notice to the effect that another edition of the report is being published at the price of five shillings, but I cannot find that this was ever issued.

Dr. Hartert has himself in the 'Ibis,' 1896, p. 373, pointed out that the figure and description were never

published, and apparently adopted the name on the authority of Sundevall in the *Öfvers. Kongl. Vet.-Akad. Förh.* vol. vi. 1849, pp. 156 & 159, who says that Afzelius brought home 23 species and that he saw some years before the plate of this Nightjar, but cannot now find it.

163. *Caprimulgus natalensis chadensis*. Alexander's Natal Nightjar.

*Caprimulgus chadensis* Alexander, Bull. B. O. C. vol. xxi 1908, p. 90 : Lake Chad.

a. ♂ ad. Pader District, 3200 ft. Feb. 18.

Total length in flesh :  $9\frac{1}{2}$  inches. Wing : 155 mm.

A rather dark specimen in good dress.

[Irides brown ; eyelids dull yellow ; bill brownish-flesh, tip black ; legs and toes flesh-colour. Only two of these birds were seen flying about the Pader Camp at dusk.]

It is remarkable that the only character of any value for separating northern from southern African birds is a slight difference in size ; this is all the more remarkable seeing that in the south this Nightjar is only known from Natal and Zululand ; the northern form occurs in Uganda, the Egyptian Sudan, the Welle River and Lake Chad Districts ; but hitherto no Nightjar of this type has been recorded from any locality between these very widely separated regions, though large collections have been made in Portuguese East Africa, the Transvaal, and Nyasaland.

The measurement of the wings gives the following result :—South Africa, ♂ 163–157 mm. (type 161 mm.), ♀ 163–149 mm. ; East Africa, ♂ 159–150 mm., ♀ 159–146 mm.—a difference of only 4 mm. between the largest specimens of both sexes.

I agree with Mr. Bannerman that at least four well-defined races of this Nightjar are recognisable (*cf.* Ibis, 1912, p. 247).

The range of these races appears to be as follows :—

*CAPRIMULGUS NATALENSIS NATALENSIS.*

*Caprimulgus natalensis* Smith, Ill. Zool. S. Africa, vol. ii. 1845, pl. 99 : Port Natal.

A large race, having the wing in males 163–157 mm. and in females 163–149 mm.

*Range.* Natal and Zululand.

CAPRIMULGUS NATALENSIS FULVIVENTRIS.

*Caprimulgus fulviventris* Hartl. Journ. für Orn. 1861, p. 102: Bembe, Angola.

Size about as in *C. n. natalensis*; general colour much more fulvous. Wing: 154 mm. The type, a male, judging by the markings of the wings and tail, is the only specimen available.

*Range.* Angola.

CAPRIMULGUS NATALENSIS ACCRÆ.

*Caprimulgus accræ* Shelley, Ibis, 1875, p. 379: Acera.

Size rather smaller than in *C. n. natalensis*; general colour much greyer (*cf.* Ibis, 1912, pl. iv.). Wing: in males 154–151 mm.; the type, a female, judging by the markings of the wings and tail, has the wing 149 mm.

*Range.* Gold Coast Colony and Liberia.

CAPRIMULGUS NATALENSIS CHADENSIS.

*Caprimulgus chadensis* Alexander, op. cit.

Similar in plumage to *C. n. natalensis*; size, perhaps on the average, smaller. Wing: ♂ 159–150 mm.; ♀ 159–146 mm. The two types, a male and a female, measure respectively 153 mm. and 147 mm.

*Range.* Uganda, Egyptian Sudan, Welle River and Lake Chad Districts.

In his description Alexander compared his birds with *C. accræ*, from which, of course, the Lake Chad birds are quite different, instead of with the parent race *C. natalensis*, from which the Lake Chad birds only differ in being slightly smaller. Had this bird not been named by Alexander I should have felt inclined to place the northern African bird under *C. n. natalensis*; but seeing that a name is available, that a difference in size, though slight, does exist, and that a gap of 2000 miles at least separates the southern and the northern localities, I feel justified in keeping up *C. n. chadensis*.

CAPRIMULGUS NATALENSIS GABONENSIS.

*Caprimulgus gabonensis* Alexander, Bull. B. O. C. vol. xxi. 1908, p. 90: Gaboon.

In plumage very similar to *C. n. fulviventris*, but rather more mottled. Size much smaller. The types, a male and a female, judging by the markings of the wings and tail, are the only specimens available, and have the wing: ♂ 142 mm.; ♀ 139 mm.

Range. Gaboon.

164. *Caprimulgus poliocephalus*. Abyssinian Nightjar.

*Caprimulgus poliocephalus* Rüpp. Neue Wirb. 1840, p. 106: Kulla, Abyssinia.

a. ♀ ad. Hills S. of Narossura River, 7200 ft. Nov. 4. Total length in flesh: 9 inches. Wing: 157 mm.

This specimen is in slightly worn dress. It agrees perfectly in the markings with a female of this species in the British Museum collection from Mt. Kenya, but is altogether darker, especially below; that is to say, it lacks most of the deep fulvous coloration. However, with only one specimen, and that a female, I prefer to place this bird under *C. poliocephalus*.

[Irides brown; bill black, base of lower mandible flesh-colour; legs and toes brown.]

In the female of this species the pattern of the white on the outermost tail-feathers agrees with that of *C. ruwenzorii* O.-Grant (Bull. B. O. C. vol. xxiii. 1909, p. 94: Mokia, S.E. Ruwenzori): but on the penultimate tail-feathers there is much less white, and the central tail-feathers are quite differently barred from those in *C. ruwenzorii*.

Sjöstedt (Zool. Kilimandjaro-Meru Exped. 1910, p. 101, pl. i.) has described a new Nightjar allied to *C. poliocephalus* under the name *C. palmquisti*, and gives the type locality as Kibonoto, Kilimanjaro; both the description and the plate agree with specimens of *C. poliocephalus* in the British Museum collection from Abyssinia, *except* for the lack of any white on the throat. It does not, however, appear to agree with the darkish specimen in this collection,

and without seeing Sjöstedt's type I am inclined to think both his and my birds are merely colour-phases of *C. poliocephalus*. In his description he has compared his bird with either a female or a young bird of *C. poliocephalus*.

In looking up the literature of this Nightjar I happened to come across the name and description of Rüppell's "*tristigma*," and it appears to me that some readjustment of names is necessary in the "*trimaculatus*" group of Nightjars.

There are five names to deal with as follows :—

SOUTH AFRICA : *Caprimulgus lentiginosus* Smith, Ill. Zool. S. Afr. 1845, pl. 101 : Great Namaqualand. Wing given as 7·6 inches.

WEST AFRICA : *Scotornis trimaculatus* Swains. Birds W. Africa, vol. ii. 1837, p. 70 : West Africa. Wing given as 8 inches.

*Caprimulgus sharpei* Alex. Bull. B. O. C. vol. xii. 1901, p. 29 : Gambaga, Gold Coast Hinterland. Wing given as 7 inches.

EAST AFRICA : *Caprimulgus tristigma* Rüpp. Neue Wirb. 1840, p. 105 : Gondar, Abyssinia. Wing given as 6·9 inches.

*Caprimulgus goslingi* Alex. Bull. B. O. C. vol. xix. 1907, p. 47 : Mt. Kaga Dzirri, nr. Kemo River, French Congo. Wing given as 6·9 inches.

The series of thirteen specimens (nine males and four females) from south Africa now before me shows that some individual variation occurs, and that specimens from both west and east Africa can be perfectly matched with those from the south. Therefore coloration cannot be taken into account, nor the spots on the wings, which vary individually from three to four in all localities; so the only character left which could form a basis for separation into races is that of the size, and this appears to work out quite well.

With the somewhat limited material before me the

rates of this rather uncommon Nightjar appear to be as follows :—

*CAPRIMULGUS TRIMACULATUS TRIMACULATUS.*

*Scotornis trimaculatus* Swains. op. cit.

*Range.* Senegal, where doubtless Swainson's specimen was secured.

I think it doubtful if the Senegal bird is really different from the Gold Coast Colony race, but as Swainson gives a wing-measurement of his bird, a male by the description, as 8 inches = 203 mm. (which is probably incorrect), and as I have not seen specimens from Senegal, I am compelled for the present to keep this race separate.

*CAPRIMULGUS TRIMACULATUS TRISTIGMA.*

*Caprimulgus tristigma* Rüpp. op. cit.

Of this, I consider that *Caprimulgus goslingi* Alex. op. cit. must become a synonym.

*Range.* Abyssinia, British East Africa, and Gaima Range, headwaters Kibali River, eastern French Congo.

Wing in males 184–170 mm., females 170 mm. Rüppell gives the wing-measurement of his type as 6·9 inches = 175 mm., and Alexander gives exactly the same for his type.

*CAPRIMULGUS TRIMACULATUS LENTIGINOSUS.*

*Caprimulgus lentiginosus* Smith, op. cit.

*Range.* From Cunene River to Great Namaqualand, Rhodesia, and the Transvaal.

Wing in males 188–185 mm., females 187–183 mm. One bird from Rustenburg, Transvaal, a male, has the wing no less than 195 mm., but this appears to be abnormal. Smith gives the wing-measurement of his type as 7·6 inches = 193 mm., but the specimen which is said to be his type is now before me and is a female judging by the lack of white on the tail-tips; it has the wing 184 mm. = 7·3 inches.

*CAPRIMULGUS TRIMACULATUS SHARPEI.*

*Caprimulgus sharpei* Alex. op. cit.

*Range.* Gold Coast Colony and Cameroons.

Wing in males 176–170 mm.

Should this bird hereafter be found to be identical with that from Senegal, then Alexander's name would become a synonym of *C. t. trimaculatus*.

165. *Caprimulgus europæus europæus*. European Nightjar.  
*Caprimulgus europæus* Linn. Syst. Nat. 10th ed. 1758,  
p. 193: Sweden.

*a.* ♂. Lengototo, 6200 ft. Nov. 10.

Total length in flesh:  $10\frac{1}{4}$  inches. Wing: 196 mm.

The white spot on the first primary is large and extends to the shaft, as also does the one on the second primary, but this does not go across to the outer web.

[Irides brown; bill black; legs and toes mixed whitish and brown.]

I have carefully examined several males taken in different parts of Europe and find that the size of the wing-spots is not a character to rely on for separating *C. e. europæus* from *C. e. uniwini*, cf. Hartert, Vög. paläarkt. Fauna, 1912, p. 847, though the spot on the second primary extending across the shaft to the outer web appears to hold good for *C. e. uniwini*. I think, however, the paler coloration of *C. e. uniwini*, as compared with *C. e. europæus*, is a much better and more constant character.

166. *Caprimulgus frænatus*. Salvadori's Nightjar.

*Caprimulgus frænatus* Salvad. Ann. Mus. Civ. Genova, vol. xxi. 1884, p. 118: Daimbi, Ada Galla, Central Abyssinia.

*a, b.* ♀ ad. Lemek Valley, 6000 & 6500 ft. Oct. 7 & 8.

*c.* ♀ imm. Amala River, 5500 ft. Oct. 12.

*d, e.* ♂ ad. Lengototo, 6200 ft. Nov. 10 & 11.

Total length in flesh: ♂  $10\frac{1}{8}$  &  $9\frac{5}{8}$  inches; ♀ ad.  $9\frac{1}{4}$  & 9 inches; ♀ imm. 9 inches.

Wing: ♂ 170 & 163 mm.; ♀ ad. 161 & 158 mm.; ♀ imm. 160 mm.

All are in good dress and but very slightly worn.

The adult females differ from the males in having less white on the tail, and both this and the spots on the wings

are tinged with buff. The immature female has the wing-spots strongly washed with buff and the tip of the tail merely tipped with buff.

[Irides brown or dark brown, eyelids yellow-brown; bill in male black, base flesh-colour; in female brown, black at tip; legs and toes brown or dirty-flesh.]

I have not been able to examine any specimens actually from the type locality; Salvadori gives the wing-measurement of his type as 175 mm.

167. *Tachornis parvus parvus*. Abyssinian Palm Swift.

*Cypselus parvus* Licht. Verz. Doubl. 1823, p. 58: N.E. Nubia.

a. ♀ ? imm. Amala River, 5400 ft. Oct. 18.

b. ♂ ? imm. Nakwai Hills, 3400 ft. Feb. 9.

Total length in flesh: ♂ 7 inches, ♀ 6 inches. Wing: ♂ 140 mm; ♀ 135 mm.

Both the specimens are in good clean dress, the male being rather darker generally than the female. Neither has any streaks on the throat, this part being plain-coloured like the neck. Young birds with sandy edges to the feathers show that in the first dress the throat is plain and that the streaked throat is apparently only assumed by the full adult. In between the first dress and the full adult there appears to be an immature stage of plumage, which is similar in every way to the adult, but the throat lacks the streaks.

[Irides brown; bill in male black, in female dark brown; feet in male blackish-flesh, in female brownish-flesh. In the Nakwai Hills a large number were seen near a clump of palm trees.]

The following four races have been recognised by Reichenow in the Vög. Afrika, vol. ii. 1903, and by other authors:—

*TACHORNIS PARVUS PARVUS* Licht. op. cit.

*TACHORNIS PARVUS GRACILIS*.

*Cypselus gracilis* Sharpe, P. Z. S. 1871, p. 315: Madagascar. Wing given as 4.95 inches=126 mm.

## TACHORNIS PARVUS MYOCHROUS.

*Cypselus myochrous* Reichw. Journ. für Orn. 1886, p. 116 : Karema, German East Africa. Wing given as 136 mm.

## TACHORNIS PARVUS BRACHYPTERUS.

*Tachornis parvus brachypterus* Reichw. Vög. Afr. vol. ii. 1903, p. 386 : Gambia. Wing given as 128–120 mm.

Two others, *Tachornis parvus læmostigma* Reichw. (Vög. Afr. vol. ii. 1905, p. 828 : South Somaliland) and *Tachornis parvus griseus* Zedl. (Orn. Monatsb. vol. xviii. 1910, p. 58 : Adiabo-Steppe, N.W. Abyssinia) are, I consider, synonyms of *T. p. parvus*, especially Zedlitz's name, which is described almost from Lichtenstein's type locality.

The series of this Swift in the British Museum measure in the wing as follows:—WEST AFRICA: Portuguese Guinea, ♀ 134; Senegambia, ♂ 138; Liberia, ♂ 127 (a very dark sooty-coloured bird); Cape Coast, no sex, 132; Gold Coast, ♂ 126, ♀ 121, no sex (eleven) 133–121: Niger, two no sex, 125 (one a dark specimen, agreeing with the one from Liberia); Gaboon, no sex, 121 & 120; between Niger and Lake Chad (Alexander), ♂ 131 & 126, ♀ 135–126; Island of Fernando Po, ♂ 124 & 130, this last a young bird, no sex 123; Angola, ♂ (four) 130–124, one young 122, ♀ (four) 130–121, one young 125; Damaraland, ♂ 129, ♀ (three) 135–126. EAST AFRICA: Abyssinia, no sex, 129; Sudan, ♂ 135, ♀ 125, no sex, 123; Lamu, ♂ 125, ♀ 114; British East Africa, ♂ 128, ♀ 135; Uganda, ♂ 140, no sex, 141; German East Africa, ♀ 135; Zanzibar, no sex, 129; Nyasaland, ♂ 132; SOUTH AFRICA: Senna, Zambesi, ♂ 126, no sex, 134 mm.

Prof. Reichenow has himself pointed out that very little reliance can be placed on the coloration; with this I concur, and it also seems to me that no great reliance can be placed on the wing-measurement, at least, as shown by the specimens enumerated above. Under these circumstance I prefer for the present to place the two specimens in this collection under the oldest name.

Certainly birds from Madagascar are decidedly darker than the majority of those on the mainland of Africa, and

can be recognised as a distinct race under the name of *T. p. gracilis*; they have a wing-measurement of: four unsexed, 135–123 mm., a female from Comoro Islands has a wing of 125 mm.

168. *Micropus æquatorialis*. Abyssinian Great Swift.

*Cypselus æquatorialis* Von Müller, Naumannia, vol. i. part 4, 1851, p. 27: Abyssinia.

a. ♂ ad. Narossura, 6400 ft. Nov. 2.

b. ♀ ad. Lengototo, 6000 ft. Nov. 10.

c. ♀ ad. Kamchurn, 3250 ft. Feb. 12.

Total length in flesh: ♂ 9½ inches; ♀ 9½ & 9 inches.

Wing: ♂ 213 mm.; ♀ 212 & 204 mm.

These three specimens appear to be fully adult and are in good clean dress.

[Irides brown; bill black; feet blackish-flesh. These large Swifts were seen more plentifully in Uganda than in British East Africa.]

There are in the British Museum collection seven specimens of this Swift as follows:—Abyssinia: Senafe, ♀, March, wing 106; Aila ♂, Feb., wing 208; Lake Tanganyika, ♀, December, wing 202; Nyasaland, ♂ ♀, no date, wing 203 & 201 (types of *C. alfredi*); North Angola, ♂, August, wing 199; Eastern Rhodesia, ♂, August, wing 198 mm.

A considerably larger series may show that birds from Nyasaland southwards are on the average smaller than those from British East Africa and Abyssinia; in which case the name, *Cypselus alfredi* Shelley (Birds Africa, vol. ii. 1900, p. 345: Mbara, Nyasaland) would be available for them.

I am strongly of opinion that *Micropus æquatorialis* should be considered as a subspecies of *Micropus barbatus*, both birds having a strong resemblance to each other and not, so far as we know at present, overlapping geographically.

*Apus reichenowi* Neum. (Bull. B. O. C. vol. xxi. 1908, p. 57: Donje Erok, N.W. of Kilimanjaro) is described as being similar to *M. æquatorialis*, but without white edges or dark subterminal bar to the feathers of the under surface.

Is not this possibly the young bird or the fully adult of *M. æquatorialis*?

169. *Micropus apus apus*. European Swift.

*Hirundo apus* Linn. Syst. Nat. 10th ed. 1758, p. 192 : Sweden.

a. ♂ ad. Lengototo, 6000 ft. Nov. 10.

Total length in flesh :  $7\frac{1}{4}$  inches. Wing : 167 mm.

This specimen has apparently not yet started to moult.

Sixteen specimens collected by myself in England have the wing-measurement as follows :—Ad. ♂ 176–170, one fully fledged young bird 165 ; ad. ♀ 175–165 mm. Total length in flesh : ♂  $7\frac{1}{2}$ – $7\frac{1}{4}$  ; ♀  $7\frac{3}{4}$ – $7\frac{1}{8}$  inches.

Of two adult specimens in the British Museum collection from Norway, one, a male, has the wing 172 and the other (unsexed) has the wing 167 mm. ; also two adult males from Hampstead have the wing 166 and 165 mm.

[Irides brown ; bill black ; feet blackish flesh-colour.]

170. *Micropus apus pekinensis*. Chinese Swift.

*Cypselus pekinensis* Swinhoe, P. Z. S. 1870, p. 435 : Peking.

a. ♀ ad. Lengototo, 6000 ft. Nov. 10.

b. ♂ ad. 10 miles S.W. of Maroto, 3900 ft. Jan. 31.

Total length in flesh : 7 &  $6\frac{3}{4}$  inches. Wing : 164 & 156 mm.

Both these specimens agree perfectly with birds from Peking ; both are in moult, the wing-feathers not being fully grown, which accounts for the small measurements given above.

[Irides brown ; bill black ; legs and toes black or blackish flesh. Abundant.]

In naming these two birds I have examined the whole series of the “*apus*” group of Swifts in the British Museum collection, and append the following remarks and wing-measurements :—As regards Africa, the names that have to be dealt with are, besides *M. a. apus* and *M. a. pekinensis*, *Cypselus shelleyi* Salvad. Ann. Mus. Civ. Gen. 1888, p. 227 : Dembi, Shoa ; *Apus apus carlo* Kollibay, J. f. O. 1905, p. 302 : Northern Tunisia ; *Apus apus marwitzi*, Reichw. Orn. Monatsb. 1906, p. 171 : Makalama, German E. Africa ;

and *Apus apus kalaharicus* Reichw. Orn. Monatsb. 1908, p. 81 : Kalahari, German S.W. Africa.

This group of Swifts is by no means easy to sort out into races, as individuals run each other so closely that it is extremely difficult to determine to which race they should belong, and in the measurement of the wing a wide range is found to exist, even though sexes are compared. In my opinion, too many races have been described, and three of the six names will have to become synonyms. A very careful comparison of the dated specimens before me shows that there are two migrants to Africa and one resident, as follows:—

*MICROPUS APUS APUS.*

A winter migrant to Africa: eight specimens in British Museum collection: two from Fantee and Cape Coast in February, wing 171 & 169; Tangier, no date, wing 167; British E. Africa, ♂ in Nov., wing 166; Yambuya, Upper Congo, wing 173; Nyasaland, ♀ in November, wing 173; Matabeleland, ♀ in December, wing 165; South Africa, no sex or date, wing 173 mm.

Measurement of a large series from England and Norway shows that the wing in males varies from 176–165 and in females from 175–165 mm. The paucity of African killed specimens in the Museum collection does not allow one to make definite statements about the migration of the European Swift, but I venture an opinion that further investigations will prove that the common line of movement is by the west coast, and that comparatively few migrate along the eastern side.

*MICROPUS APUS PEKINENSIS.*

Equal in size to *M. a. apus*, but general colour browner.

I agree with Hartert (*cf.* Vög. paläarkt. Fauna, 1912, p. 838) that *M. a. kalaharicus* (wing given as 175–170 mm.) is a synonym of this race; and I also consider *M. a. carlo* (wing given as 175 mm.) and *M. a. marwitzii* (no wing-measurement given) to be the same.

About equal in size to *M. a. apus*, but general colour

browner. A winter migrant to Africa. Seventeen specimens in the British Museum collection measure:—from Tunis, wing 165; Abyssinia, two ♂, 27 July, wings 173 & 165, one young bird same date, no sex, wing 164, Aug. ♂ & ♀, wings 173 & 167, Feb., ♀ in moult, and therefore wing only 158, and another no date or sex, wing 170; British East Africa, two ♀ in moult, wing 164 & 156; Matabeleland, Nov., ♂, wing 179; East Damaraland, Oct., ♂, wing 167; Bechuanaland, Jan., ♂, wing 180, and three Feb., females, wings 174, 173, & 171; Transvaal, Jan., ♂ & ♀, wings 175 & 164 mm.

Measurement of specimens from Pekin have the wing in males 172; from Chefoo, ♂ 177–168, ♀ 176–164; Tian Shan, ♂ 182 & 174 mm.; thus giving a range of wing-measurement for Chinese birds of 182–168 in males and in females 174–164 mm. Swinhoe gives 7" = 177 mm. for his type specimen, which was a male.

According to Hartert op. cit. this Swift breeds in Persia, Afghanistan, and south Siberia; so that it seems feasible that the birds that visit Africa during the northern winter are those that have bred at the most western limits of its range.

The seventeen specimens enumerated above point to the common line of migration being *via* the east coast, spreading rather westward as the movement proceeds southwards, but never occurring in west Africa proper.

Tunis seems rather too far west to be strictly in the line of migration of this bird, but certainly the single specimen labelled from that locality does not differ from Chinese birds.

#### MICROPUS APUS SHELLEYI.

*Cypselus shelleyi* Salvad. Ann. Mus. Civ. Gen. 1888, p. 227: Dembi, Shoa.

A resident species in east Africa; general colour very similar to *M. a. pekinensis*, but mantle perhaps darker and secondaries and coverts lighter. Size smaller, wing 160–144 mm., type given as 157 mm. Eight specimens in the British Museum collection: from Abyssinia, ♀, no date,

wing 152, Dembi, ♂, June, wing 157 (one of the types), Senafe, ♂, April, wing 144; British East Africa, Nyiro, ♂, April, wing 148, Kikuyu, May, no sex, wing 148, Nairobi, ♀, June, wing 151, Naivasha, ♂, December, wing 160; these are all adult; one young bird from Zomba, Nyasaland, no sex, has a wing of 137 mm.

The range of this resident bird would appear to be from Senafe in Abyssinia to Zomba in Nyasaland.

The character given by Salvadori of the yellow feet does not hold good, and appears to be merely the way in which these members happen to dry.

There are three other species of Swift occurring on the mainland of Africa, that may be confounded with the above three forms, but which are really quite distinct from them; they are:—

*MICROPUS MURINUS MURINUS.*

*Cypselus murinus*, Brehm, Vogelf. 1855, p. 46: Siût, Egypt.

This is a very pale mouse-coloured (mausegrau) bird, with an extensive white throat, and appears to be a winter migrant to Egypt only, and does not occur elsewhere on the mainland of Africa. Wing, ♂ 169, no sex 170–158 mm., in seven specimens from Egypt in the British Museum, only three are dated, two February and one March.

*Cypselus pallidus* Shelley (Ibis, 1870, p. 445: Egypt) is a synonym and the type, a ♂, in the British Museum has a wing of 169 mm.

*MICROPUS MURINUS BREHMORUM.*

*Apus apus brehmorum* Hartert, Naum. Vög. Deutschl. vol. iv. 1901, p. 233: Madeira.

On the average rather darker than true *M. m. murinus*. Wing: Madeira, ♂, June, 175 mm., ♂, no date, 171 mm.; Swakop River, Damaraland, December, 176 mm.; Benguela, no date or sex, 170 mm.

The single specimen from Benguela does not agree perfectly with this race, having a darker forehead and but

the merest trace of white on the throat : it is, however, too light in general colour to be placed under *M. a. pekinensis*; so that until more material is available from south-west Africa, I leave it for the present in the position Hartert has put it, *cf.* Vög. paläarkt. Fauna, 1912, p. 839.

*MICROPUS BARBATUS.*

*Cypselus barbatus* Selater, P. Z. S. 1865, p. 599 : South Africa, *ex* Temm.

Rather darker than *M. a. apus*, with distinct black stripes on the throat and having a somewhat larger and broader bill.

A resident in South Africa. Wing in three males 180–173 mm., one female 182 mm.; three specimens not sexed have the wing 186–176 mm.

[To be continued.]

XIV.—*The “Mauritius Hen” of Peter Mundy.*

By W. L. SELATER, M.A., M.B.O.U.

THERE has recently been published by the Hakluyt Society and edited by Lt.-Col. Sir Richard C. Temple, Bt., Peter Mundy's account of his travels in Europe and Asia in the early part of the seventeenth century.

Peter Mundy was born about the year 1596 at Penryn in Cornwall, and in addition to his travels in Europe as far as Constantinople and Archangel, he made three voyages to the east, the first to India in the East India Company's service in 1628–1634, the second with Sir Wm. Courten's fleet to India and Japan in 1635–1638, and the third to India in 1655–1656. He is supposed to have died about 1667 at his native town of Penryn.

The account of his travels, very carefully prepared by himself, has remained up till now in MSS. and unpublished in the Bodleian Library at Oxford, while there is a second less complete copy in the British Museum.

The second volume recently published by the Hakluyt Society contains an account of Mundy's first voyage to